



October 29, 2021

Via Sharefile

Mr. Sameh Abdellatif
Hazardous Waste Programs Branch
US Environmental Protection Agency Region 2
290 Broadway, 22nd Floor
New York, New York 10007-1866

**Re: Third Quarter 2021 Progress Report
Hess Corporation – Former Port Reading Complex (HC-PR)
750 Cliff Road
Port Reading, Middlesex County, New Jersey
EPA ID No. NJD045445483
NJPDES Permit NJ0028878 & NJ0102709**

Dear Mr. Abdellatif:

Enclosed please find the Third Quarter 2021 Progress Report for the above referenced site. This report was prepared by Earth Systems, Inc. on behalf of Hess Corporation. As required by Module II (D) of the Hazardous and Solid Waste Amendments (HSWA) Permit number NJD045445483, the enclosed report presents activities associated with the Solid Waste Management Units (SWMUs), including the North Landfarm, South Landfarm, and No. 1 Landfarm, all of the Areas of Concern (AOCs), Historic Spills (HSs), and Remediation Management Units (RMUs) identified at the Former Port Reading Complex.

Should you have any questions or comments relating to this report, please call me at 732-739-6444, extension 2305. I can also be reached via e-mail at ablake@earthsys.net. If you have any questions relating to the project and schedule moving forward, you can also contact Mr. John Schenkewitz of Hess Corporation at 609-406-3969.

Sincerely,
Earth Systems, Inc.

A handwritten signature in blue ink that reads "Amy Blake". The signature is fluid and cursive, with a long horizontal line extending from the end.

Amy Blake
Senior Project Manager

cc: Ms. Julia Galayda – NJDEP (via sharefile)
Mr. Andrew Park – EPA (electronic copy)
Mr. John Schenkewitz – Hess Corporation (electronic copy)
Mr. Rick Ofsanko – Earth Systems, Inc. (electronic copy)
Mr. John Virgie – Earth Systems, Inc. (electronic copy)

THIRD QUARTER 2021 PROGRESS REPORT
HESS CORPORATION – FORMER PORT READING COMPLEX
NORTH LANDFARM, NO.1 LANDFARM, and SOUTH LANDFARM
SOLID WASTE MANAGEMENT UNITS (SWMUs), AREAS OF CONCERN (AOCs),
HISTORIC SPILLS (HSs), AND COMBINED REMEDIATION MANAGEMENT UNITS

Hess Corporation – Former Port Reading Complex
750 Cliff Road
Port Reading, Middlesex County, New Jersey
EPA ID#: NJD045445483

October 2021

Prepared for:



Hess Corporation

*Trenton-Mercer Airport
601 Jack Stephan Way
West Trenton, New Jersey 08628*

Prepared by:



*1625 Highway 71
Belmar, New Jersey 07719*

TABLE OF CONTENTS

1.0	INTRODUCTION AND SUMMARY TABLE	1
2.0	ISRA AND REGULATORY REQUIREMENTS UPDATE.....	2
2.1	GROUNDWATER GAUGING.....	7
2.2	LNAPL IRM.....	8
3.0	GROUNDWATER MONITORING.....	9
4.0	AREAS OF CONCERN AND SOLID WASTE MANAGEMENT UNITS UPDATE	9
4.1	AOC 3 – No. 1 LANDFARM (SWMU).....	12
5.0	SCHEDULE.....	11

FIGURES

FIGURE 1:	USGS Site Location Map
FIGURE 2:	Site Plan
FIGURE 3:	Tax Map
FIGURE 4:	Historic and Areas of Concern Map (4.1 through 4.5)
FIGURE 5:	Historic Spill Location Map
FIGURE 6:	July Monthly Gauging Contour Map
FIGURE 7:	August Monthly Gauging Contour Map
FIGURE 8:	September Monthly Gauging Contour Map
FIGURE 9:	North Landfarm Groundwater Contour Map (July 2021)
FIGURE 10:	South Landfarm Groundwater Contour Map (July 2021)
FIGURE 11:	No. 1 Landfarm Groundwater Contour Map (July 2021)

TABLES

TABLE 1:	Monthly Groundwater Gauging Table
TABLE 2:	Quarterly Groundwater Gauging Table
TABLE 3:	Historic LNAPL Table

APPENDICES

Appendix A:	Disposal Manifest – Interceptor Trench / PL-5R
Appendix B:	NJDEP Comment Letter
Appendix C:	NJDEP Dataminer Inspection Summary

1.0 Introduction and Summary Table

Earth Systems, Inc. (Earth Systems) has been retained by Hess Corporation (Hess) to provide environmental consulting services for the Hess Corporation – Former Port Reading Complex (HC-PR) facility located at 750 Cliff Road in Port Reading (Woodbridge Township), Middlesex County, New Jersey. A United States Geological Survey (USGS) 7.5 minute series quadrangle map (Arthur Kill, New Jersey) depicting the site location, facility and associated land features is included as **Figure 1**. A Site Plan has been included as **Figure 2** and a tax map of the site is provided as **Figure 3**.

This report documents the investigative and groundwater sampling activities completed in the Third Quarter 2021 (Q3 2021) at the Solid Waste Management Units (SWMUs), Areas of Concern (AOCs), Historic Spills (HSs) and Remediation Management Units (RMUs). Investigative and remedial activities included groundwater gauging, groundwater monitoring, soil investigation, Light Non-Aqueous Phase Liquid (LNAPL) monitoring and product recovery.

SUMMARY OF ACTIONS

Location	Case Number/ Description	Action
AOC 1	North Landfarm	Quarterly Groundwater Monitoring – July 2021
AOC 2	South Landfarm	Quarterly Groundwater Monitoring – July 2021
AOC 3	No. 1 Landfarm	Quarterly Groundwater Monitoring – July & September 2021
AOC 10	Truck Loading Rack	LNAPL Recovery (Passive & Active) – Conducted as Needed
AOC 14a	TM Monitoring Wells	Bi-weekly Groundwater Gauging Events
AOC 103	Fire Pits / Fire Training Area	Bi-weekly Groundwater Gauging Events; LNAPL Recovery (Passive & Active) – Conducted as Needed
TFMU	Tankfield Remediation Management Unit	Bi-weekly Groundwater Gauging Events
SRMU	Southern Remediation Management Unit	Bi-weekly Groundwater Gauging Events

2.0 ISRA and Regulatory Requirements Update

A Preliminary Assessment Report (PAR) was submitted to the New Jersey Department of Environmental Protection (NJDEP) and the United States Environmental Protection Agency (USEPA) on October 9, 2015. A total of 117 AOCs were identified in the PAR (**Figures 4.1** through **4.5**). Of the total number of AOCs identified at the site, the PAR indicated 62 AOCs required further investigation. The Site Investigation Report (SIR) was submitted to the NJDEP and the USEPA on November 7, 2015 and approved on August 24, 2021. The NJDEP provided several comment letters on the SIR. The following table lists the dates of the comment letters and responses:

NJDEP Comment Letter Date	Response to Comment (RTC) Date
August 10, 2017	December 20, 2017
June 9, 2020	July 31, 2020
December 6, 2018 (Ann Charles NJDEP)	October 19, 2020
December 6, 2018 (Jill Monroe NJDEP)	October 19, 2020
November 17, 2020	February 17, 2021

The SIR comments will be addressed in the Site or AOC specific Remedial Investigation Workplan / Remedial Investigation Report (RIW/RIR) report(s).

RIWs summarizing proposed remedial investigation activities for selected priority AOCs were submitted in 2016. The RIWs relate to the following priority AOCs and AOC groupings, which have been identified by the NJDEP and USEPA:

AOC ID	RIW/RAW Submitted	RIW/RAW Approved	Current Status
AOC 1 – North Landfarm	3 rd Quarter 2016		<ul style="list-style-type: none">- Comments received from NJDEP/USEPA North Landfarm Remedial Action Workplan (RAW) 2018- 90% Soil Remediation Action Design for the engineering controls submitted to NJDEP/USEPA April 2020- Updated Groundwater Sampling Plan being prepared for submittal in Q4 2021/Q1 2022
AOC 2 – South Landfarm	3 rd Quarter 2016		<ul style="list-style-type: none">- Comments received from NJDEP/USEPA South Landfarm RAW 2019- Response is being completed and will be submitted in 2021/2022

			<ul style="list-style-type: none"> - Updated Groundwater Sampling Plan being prepared for submittal in Q4 2021/Q1 2022
AOC 3 – No. 1 Landfarm	3 rd Quarter 2016		<ul style="list-style-type: none"> - Comments received from NJDEP/USEPA No. 1 Landfarm RAW 2018 - 100% Soil Remediation Action Design for the engineering controls was submitted to the NJDEP Q3 2019 - NJDEP/USEPA approved the 100% design in April 2020 - Permits were submitted for the final design in June 2020, September 2020, and October 2020 (see Section 4.3 for permits status) - Updated Groundwater Sampling Plan submitted in Q3 2021 - Pre-construction remedial closure activities began in September 2021.
AOC 10 – Truck Loading Rack and AOC 57 –Day Tankfield Area AOCs – AOC 29 – Mixing Basin, AOC 43 – Truck Unloading Area, AOC 110 – Oil/Water Separator, AOC 111 – Chemical Storage Area, AOC 82 – Former Incinerator Bldg, AOC 86 – Truck Rack VRU, AOC 109	3 rd Quarter 2016/Supplementary RIW - 2 nd Quarter 2021	4 th Quarter 2017 & 3 rd Quarter 2018	<ul style="list-style-type: none"> - Comments received from NJDEP/USEPA Q1 & Q2 2017 - Response to Comments (RTC) submitted in Q3 2017 - On-site monitoring well installation conducted in Q4 2018 - Soil investigation conducted in Q3 2019 - Off-site monitoring well installation conducted in Q4 2019 - Supplementary revised RIW was submitted on April 26, 2021.

– Truck Rack Sump			
AOC 11a – Administration Building (also AOC 78 – Administration Building Drainage Channel)	1 st Quarter 2016	2 nd Quarter 2017	<ul style="list-style-type: none"> - Remedial Investigation (RI) activities began in Q3 2017 and are currently ongoing - Indoor air sampling was conducted in Q3 2020 and Q1 2021 - Offsite monitoring well installation currently being coordinated, as proposed in RIR
AOC 12 – Smith Creek and Detention Basin	3 rd Quarter 2016/Supplementary RIW – 3 RD Quarter 2021	2 nd Quarter 2018	<ul style="list-style-type: none"> - Comments received from the NJDEP/USEPA in Q1 2017 - RTC submitted in Q2 2017 - Additional comments & meeting in Q2 2017 - RTC submitted Q4 2017 - Sediment & surface water investigation conducted in 2018 & 2019 - Soil investigation and monitoring well installation conducted in Q3 2019 - Supplementary revised RIW was submitted on July 30, 2021
AOC 19 – QC Laboratory	2 nd Quarter 2016 (revised RIW)	2 nd Quarter 2016	<ul style="list-style-type: none"> - RIR/RAR submitted in Q2 2017 - Comments received from the NJDEP/USEPA in Q3 2017 - RTC submitted Q3 2017 - Revised RIR/RAR Q1 2018 - Meeting in Q2 2018 - Revised RIR/RAR submitted in Q3 2019 & approved Q4 2019 - Remedial Action Permits (RAPs) for soil & groundwater have been submitted to NJDEP Site Remediation (on January 6, 2021) for review prior to submittal

			<ul style="list-style-type: none"> - Deed Notice has been approved by NJDEP and USEPA in Q1 2021 and was filed with the county - Meeting was held with the NJDEP/USEPA on May 18, 2021 and some additional supplemental sampling was requested prior to submitting the RAPs to NJDEP Permitting - Sampling occurred on July 1, 2021 - Final RAPs were submitted for review in Q2 2021
AOC 103 – Fire Pits / Fire Training Area	1 st Quarter 2021 (SI)/RIW - 2 nd Quarter 2021	4 th Quarter 2021 (RIW)	<ul style="list-style-type: none"> - Site Investigation Workplan (SIW) submitted in Q2 2019 - Comments received from NJDEP/USEPA in Q2 2019 - Teleconference and quarterly progress meeting in Q2 2019 - RTC submitted on June 24, 2019 - Revised SIW submitted in Q4 2019 and approved Q4 2019 - Seven (7) groundwater monitoring wells installed and sampled in Q1 2020. - A PowerPoint presentation summarizing the investigation and recommendations for further investigation was provided to the NJDEP and USEPA on April 9, 2020 and discussed during a teleconference on June 29, 2020 - NJDEP provided additional comments on July 7, 2020 and a response was submitted on August 18, 2020 - RIW submitted on April 26, 2021 - NJDEP provided comments on July 28, 2021 and a meeting was held to discuss the comments on August 16, 2021 - A RTC was submitted on September 28, 2021 - RIW was approved on October 12, 2021

<p>AOC 16b – Marine Terminal Loading Area & AOC 85 – Marine VRU (RIW also includes area AOCs)</p>	<p>Solar Area RIW – 2nd Quarter 2021, Marine Area RIW 3rd Quarter 2021</p>	<p>-</p>	<p>- A supplemental RIR/RIW was submitted in Q2 2020</p> <p>- Due to the current owner's (Buckeye Partners, L.P. [Buckeye]) proposed solar field installation project, the Q1 2021 submitted report was rescinded to split out the solar field project AOCs.</p> <p>- These AOCs were prepared in a separate RIW which was submitted on July 14, 2021.</p> <p>- The Marine Area RIW was submitted on July 14, 2021.</p>
<p>Tankfields – AOC 6 – HSWA UST, AOC 14a – First Tankfield, AOC 46 – Slop Gasoline Unloading Area, AOC 53 – Second Tankfield, AOC 54 – Third Tankfield, AOC 56 – Second Reserve Tankfield</p>	<p>2nd Quarter 2021</p>	<p>-</p>	<p>- A supplemental RIR/RIW was submitted in Q2 2020</p> <p>- The supplemental RIR/RIW was rescinded for revisions</p> <p>- The supplemental revised RIW was submitted on May 10, 2021.</p>

As a response to the findings of the Preliminary Assessment/Site Investigation (PA/SI) conducted at the HC-PR property, RIWs have been submitted, or are in the process of being submitted, to the NJDEP and USEPA (summarized in the above table).

The following is a list of the AOCs included in Former Refining Area Remediation Management Unit RIW that was submitted on May 20, 2021:

- Former Refining Area Remediation Management Unit
 - AOC-9 Alkylation Unit (Sewer Line)
 - AOC-18 Dimersol Unit
 - AOC-20a T1600-A and T-1600B Transformers
 - AOC-20b T510-A and T510-B Transformers
 - AOC-25 X-1950A and X-1950B (Alkylation Neutralization Basin)
 - AOC-26 D-1104 (MEA Sump)
 - AOC-27 EADC Sump

- AOC-28 Cooling Water Tower
- AOC-30 Sulfur Pit
- AOC-31 Brine Pit
- AOC-32 X-1951 (SRU Neutralization Basin)
- AOC-38 NH₃ Truck Loading Rack/Ammonia Area
- AOC-39 EADC Truck Unloading Area
- AOC-40 Fresh Acid Unloading Area
- AOC-45 Former Sulfur Recovery Unit Truck Loading Rack
- AOC-47 Bleach Truck Unloading Area
- AOC-58 Former Chemical Storage Area
- AOC-59 API Storage Area
- AOC-60 Avenue B Tank Field
- AOC-80 Former Crude Topping Unit
- AOC-88 Compressor Building
- AOC-89 Cracking Tower
- AOC-92 TK-701A and TK-701B
- AOC-96 Boiler Area
- AOC-99 Chemical Storage Area
- AOC-117 Diesel Powered Emergency Generator - Millwright's Shop

2.1 Groundwater Gauging

Earth Systems conducts Monthly Gauging Events as part of the Interim Remedial Measures (IRMs) at the HC-PR facility. Monthly gauging events target monitoring wells with a history of LNAPL or sheen and wells in close proximity to LNAPL or sheen detections. During Q3 2021, Earth Systems conducted gauging on a bi-weekly basis due to the presence of LNAPL and discontinuous sheens.

Bi-Weekly Gauging

Groundwater gauging is currently conducted for the following thirty-four (34) monitoring wells: (PL-1RR, PL-2, PL-3R, PL-4RR, PL-5R, PL-6R, PL-7, PL-8R, PL-9R, TF-1, TF-2, TF-3, TM-6R, TM-7, TR-1R, TR-2R, TR-3RR, TR-3D, TR-3DD, TR-4R, TR-4D, TR-4DD, TR-5, TR-5D, TR-5DD, TR-6, TR-6D, FA-1, FA-2, FA-3, FA-4, FA-5, FA-6, and FA-7), two (2) recovery sumps (TR-Sump-1 and TR-Sump-2), the interceptor trench, and six (6) surface water gauges (DB-SW, LN-SW, L1-SW, SC-SG-1, SC-SG-1A, and SC-SG-2).

All monitoring wells are gauged by utilizing a Solinst oil/water interface probe and measured from a surveyor's mark (present on the top of the inner casing) to the top of the groundwater table.

During the Q3 of 2021, bi-weekly gauging was conducted in July, August, and September (summarized below). The results of the gauging activities are provided in **Table 1** and on **Figures 6, 7, and 8**. Historic LNAPL levels are summarized in **Table 3**.

For reference purposes, all site monitoring well documentation has been compiled into a comprehensive Well Manual. As of the date of this report preparation, the current version of the Well Manual is dated August 11, 2021. The Well Manual is revised as new wells are installed at the site and re-dated pursuant to agreements between USEPA, NJDEP, Earth Systems, and Hess. The Well Manual includes the following:

- Master Well Construction Details Summary Table
- Well Permits
- Well Records
- Geologic Well Logs
- Form B's

The results of the Q3 2021 monthly groundwater gauging events are summarized below:

- During the July 2021 gauging events, a measurable thickness of LNAPL was encountered in the interceptor trench and monitoring wells PL-5R, FA-5 and TF-2. The LNAPL observed in the monitoring wells ranged from 0.01 (TF-2) to 0.30 feet (PL-5R). A discontinuous sheen was encountered in monitoring wells FA-3, PL-1RR, TF-1, TF-2, and TR-2R. Please note, that a discontinuous sheen is defined as an observable amount of product on the surface of the water table that is broken or intermittent and does not cover the majority of the water surface and measures less than 0.25 mm thick.
- During the August 2021 gauging events, a measurable thickness of LNAPL was encountered in the interceptor trench and monitoring well PL-5R (level of 0.19), FA-5 (level of 0.03), and TF-2 (level of 0.01). A discontinuous sheen was encountered in monitoring wells FA-3, PL-1RR, TF-1, TF-2, and TR-2R.
- During the September 2021 gauging events, a measurable thickness of LNAPL was encountered in the interceptor trench and monitoring well PL-5R (1.25) and monitoring well FA-5 (0.01). A discontinuous sheen was encountered in monitoring well PL-1RR and TF-2.

An analysis of groundwater elevations indicate that groundwater flow direction is generally to the south and east, consistent with historic groundwater flow direction on the site and the Port Reading Conceptual Site Model (CSM).

2.2 LNAPL IRM

Currently, passive LNAPL recovery methods and scheduled vacuum extraction events are being utilized at the site. Absorbent booms are placed in impacted wells and replaced as necessary. Absorbent booms/socks are placed in the following wells: PL-1RR, PL-5R, TF-1, TF-2, TM-6R, TM-7, TR-2R, FA-3, and FA-5. All used booms are placed in a 55-gallon drum and staged on-site. Once at capacity, the drum is removed from the HC-PR site and disposed at a licensed waste disposal facility. Vacuum extraction events are scheduled, if necessary, to address LNAPL observed in the interceptor trench and monitoring wells FA-5 and PL-5R. Three vacuum extraction events were conducted in Q3 2021. On July 14, 2021, a total of 349- gallons of petroleum impacted water was

removed from the interceptor trench and monitoring well PL-5R. On August 24, 2021, a total of 484-gallons of petroleum impacted water was removed from the interceptor trench and monitoring well PL-5R. On September 15, 2021, a total of 307-gallons of petroleum impacted water was removed from the interceptor trench and monitoring well PL-5R. Disposal documentation is included in **Appendix A**.

Monitoring Well PL-5R IRM

Historic product levels detected in monitoring well PL-5R are being evaluated to determine the additional investigation and remediation requirements that are necessary to address the LNAPL observed intermittently within this well. An IRM Scope of Work (SOW) for well PL-5 will be provided to the NJDEP and USEPA for review in 2022.

The monitoring well will continue to be monitored as part of ongoing IRM conducted at the site.

3.0 Groundwater Monitoring

On July 13, 14, and 15, 2021, groundwater samples were collected via low-flow sampling methodology in accordance with the NJDEP's *Field Sampling Procedures Manual (FSPM)* at the three (3) Landfarm locations (No.1, North, and South Landfarms).

Samples were collected in laboratory supplied glassware and transferred to SGS Laboratories (SGS) of Dayton, New Jersey (NJ NELAP Certification No. 12129) under strict chain of custody procedures.

Analytical results will be provided in the Semi-Annual Report only, which will be submitted in January 2022. Pursuant to USEPA/DEP direction (via comment letter dated November 13, 2020 – see **Appendix B**), analytical results are no longer included in the Quarterly reports. The results of the gauging activities are provided in **Table 2** and on **Figures 9, 10, and 11**.

4.0 Areas of Concern and Solid Waste Management Units Update

As discussed previously, a PAR and SIR were submitted to the NJDEP and USEPA on October 9, 2015 and November 7, 2015, respectively. The SIR described the soil and groundwater investigation activities conducted on the site. Several RIW's were submitted subsequent to the SI for select AOCs. The following is a brief summary of any remediation investigation activities conducted during Q3 2021.

AOC 12 – Smith Creek and Detention Basin

A Supplemental revised RIW was submitted to the NJDEP/USEPA on July 30, 2021.

AOC 19 – QC Laboratory & AOC 90 – Former Drum Compound

Final RAP applications were submitted for NJDEP review on August 26, 2021.

AOC 103 – Fire Pits/Fire Training Area

This AOC was included in the Marine Loading Dock Area RIW, which was initially submitted to the NJDEP on March 3, 2021, for expedited review. The RIW has been

revised for resubmission and has been split into two (2) RIWs (Marine Loading Terminal and Proposed Future Solar Project Area). AOC 103 was included in the Proposed Future Solar Project Area RIW that was submitted to the NJDEP/USEPA on April 26, 2021. The Marine Loading Dock Area RIW was submitted on July 14, 2021.

The NJDEP provided comments on July 28, 2021 and a meeting was held to discuss the comments on August 16, 2021 between Hess, Earth Systems, and NJDEP personnel. A RTC was submitted by Hess/Earth Systems on September 28, 2021.

4.1 AOC 3 – No. 1 Landfarm (SWMU)

Routine monitoring (groundwater, soil, and leachate) will continue at the No. 1 Landfarm, pending approval and execution of closure. A RAW was submitted to the USEPA and NJDEP in September 2016 and comments were received from the USEPA and NJDEP on July 9, 2018. A 100% Soil Remedial Action Design for the No. 1 Landfarm engineering control was submitted on May 24, 2019. Comments regarding the 100% engineering control design submittal were received from the NJDEP on October 7, 2019. The comments were addressed by Hess/Earth Systems on November 1, 2019 and the NJDEP subsequently approved the response. The NJDEP and USEPA issued an approval letter of the 100% engineering control design on April 28, 2020.

The following permits were submitted in June 2020 and October 2020 and have been approved by the NJDEP on the dates provided:

- Soil Erosion & Sediment Control Plan (Freehold Soil Conservation District), approved on August 17, 2020
- Flood Hazard Area Individual Permit (NJDEP Land Use Regulation Program), approved on September 25, 2020
- Waterfront Development GP-11 Permit (NJDEP Land Use Regulation Program), approved on September 25, 2020
- Freshwater Wetland GP-4 Permit (NJDEP Land Use Regulation Program), approved on September 25, 2020
- NJPDES B4B Permit (NJDEP Wastewater Program), approved on September 15, 2020
- Treatment Works Approval TWA-1 Permit (NJDEP Wastewater Program), approved on February 18, 2021
- NJPDES Individual Permit (NJDEP Stormwater Program), public comment period is over and approved on August 1, 2021.

Pre-construction activities have begun in September 2021. These activities included installation of site erosion control features, gate installation, and equipment mobilization.

The NJDEP Office of Hazardous Waste Compliance & Enforcement observed the Q2 2021 groundwater sampling event and no violations were found, according to the Inspection Summary Report finalized on September 10, 2021. A copy of the dataminer record of the inspection is included as **Appendix C**.

The updated Groundwater Sampling Plan for the No. 1 Landfarm was submitted on August 25, 2021 to the NJDEP and USEPA.

5.0 Schedule

Site-wide LNAPL Monitoring & Recovery

Bi-weekly gauging events continue to be conducted as part of the IRM at the site. In addition, LNAPL will continue to be removed via vacuum truck from both the interceptor trench and select monitoring wells, as necessary. Passive absorbent socks and booms will also continue to be deployed in both the interceptor trench and select monitoring wells, as necessary.

AOC 10 – Truck Loading Rack and AOC 57 – Day Tankfield

A Supplemental RIR/RIW was submitted in Q1 2020. Based upon subsequent discussions with NJDEP/USEPA pertaining to the Port Reading June 9, 2020 memo (i.e. the “over-arching issues” memo), the RIR/RIW was rescinded and revised to incorporate the additional requested information. The revised RIR/RIW was submitted on April 26, 2021. As discussed during the Q3 USEPA/NJDEP/Hess/Earth Systems meeting, the proposed investigation activities will be initiated during Q4 2021. An updated schedule is currently being prepared that will include more precise date ranges for the specified field work.

AOC 12 – Smith Creek and Detention Basin

A Supplemental RIR/RIW was submitted in Q1 2020. Based upon subsequent discussions with NJDEP/USEPA pertaining to the Port Reading June 9, 2020 memo (i.e. the “over-arching issues” memo), the RIR/RIW was rescinded and revised to incorporate the additional requested information. The revised RIR/RIW was submitted on July 30, 2021. The proposed investigation activities will be conducted once the revised Supplemental RIR/RIW is reviewed and approved by the NJDEP and USEPA.

AOC 103 – Fire Pits/Fire Training Area

The Proposed Future Solar Project Area RIW, which includes AOC 103, was submitted on April 26, 2021. The NJDEP provided comments on July 28, 2021 and a meeting was held on August 16, 2021 to discuss the comments. A RTC was submitted by Hess/Earth Systems on September 28, 2021. The NJDEP and USEPA approved the workplan on October 12, 2021. As discussed during the Q3 USEPA/NJDEP/Hess/Earth Systems meeting, the proposed investigation activities will be initiated during Q4 2021 and/or Q1 2022. An updated schedule is currently being prepared that will include more precise date ranges for the specified field work.

AOC 11a – Administration Building

The RI for AOC 11a is currently ongoing. The installation of offsite AOC-11a monitoring wells will be coordinated as part of implementation of RI activities being conducted for other Site areas.

Former Refining Area Remediation Management Unit

A Supplemental RIR/RIW was submitted in Q2 2020. Based upon subsequent discussions with NJDEP/USEPA pertaining to the Port Reading June 9, 2020 memo (i.e. the “over-arching issues” memo), the RIR/RIW was rescinded and revised to incorporate the additional requested information. The revised RIR/RIW was submitted on May 20, 2021. As discussed during the Q3 USEPA/NJDEP/Hess/Earth Systems meeting, the proposed investigation activities will be initiated on October 25, 2021.

Former Marine Loading Dock Area

A Supplemental RIR/RIW was submitted in Q1 2021. Based upon subsequent discussions with NJDEP/USEPA, the RIR/RIW was rescinded and divided into two (2) RIWs (Marine Loading Terminal and Proposed Future Solar Project Area). The Marine Loading Terminal RIW is currently being prepared for a targeted submittal in Q3 2021. The Proposed Future Solar Project Area RIW was submitted on April 26, 2021. As discussed during the Q3 USEPA/NJDEP/Hess/Earth Systems meeting, the proposed investigation activities will be initiated during Q4 2021 and/or Q1 2022. An updated schedule is currently being prepared that will include more precise date ranges for the specified field work.

Tankfields

A Supplemental RIR/RIW was submitted in Q2 2020. Based upon subsequent discussions with NJDEP/USEPA pertaining to the Port Reading June 9, 2020 memo (i.e. the “over-arching issues” memo), the RIR/RIW was rescinded and revised to incorporate the additional requested information. The revised RIR/RIW was submitted on May 10, 2021. As discussed during the Q3 USEPA/NJDEP/Hess/Earth Systems meeting, the proposed investigation activities will be initiated during Q4 2021 and/or Q1 2022. An updated schedule is currently being prepared that will include more precise date ranges for the specified field work.

Landfarms

The next quarterly sampling event for the North, South, and No. 1 Landfarms is scheduled in October 2021.

AOC 1 – North Landfarm (SWMU)

Routine groundwater monitoring will continue at the North Landfarm, pending approval and execution of the proposed Closure Plan. A Remedial Action Workplan (RAW) was submitted to the USEPA and NJDEP for the North Landfarm in September 2016. Comments were received from the USEPA and NJDEP on June 7, 2018. A 90% Soil Remediation Action Design (RAD) for the North Landfarm engineering control was submitted to the USEPA and NJDEP on October 24, 2019. The NJDEP and USEPA issued an approval letter for the 90% design on April 28, 2020. The current owner, Buckeye, has recently completed the lining of the tankfield located directly adjacent to the North Landfarm. The 100% RAD will be finalized once the as-built drawings are provided to Hess/Earth Systems.

The updated Groundwater Sampling Plan for the North Landfarm is being prepared with a targeted submittal date in Q4 2021.

AOC 2 – South Landfarm (SWMU)

Routine groundwater monitoring will continue at the South Landfarm, pending approval and execution of the proposed Closure Plan. A RAW was submitted to the USEPA and NJDEP for the South Landfarm in September 2016. Comments were received from the USEPA and NJDEP on March 20, 2019 and a response is currently being prepared and targeted for submittal in 2022.

The updated Groundwater Sampling Plan for the South Landfarm is being prepared with a targeted submittal date in Q1 2022.

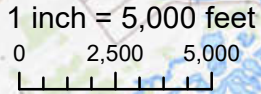
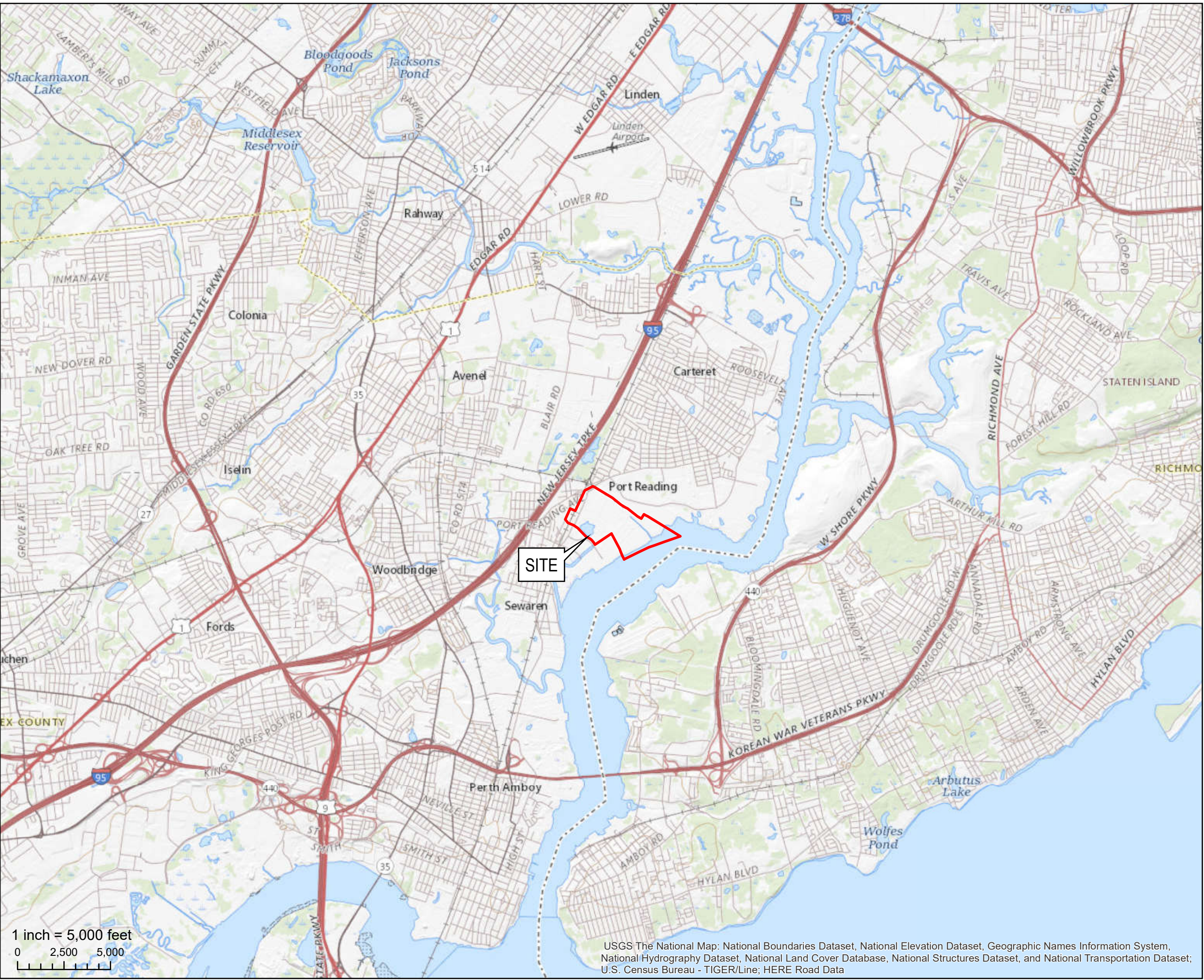
AOC 3 – No. 1 Landfarm (SWMU)

Routine groundwater monitoring will continue at the No. 1 Landfarm during closure activities. The updated Groundwater Sampling Plan for the No. 1 Landfarm was submitted on August 25, 2021 to the NJDEP and USEPA.

Remedial capping activities began in September 2021 for the No. 1 Landfarm. The NJDEP and EPA was notified prior to the start of cap installation activities and Hess/Earth Systems will also provide periodic updates regarding capping progress throughout Q4 2021.

Figures

Document Path: P:\ArcGIS\HESS Projects\1114J00 - Port Reading Hess\1114J01 - Stewide\GIS\Port Reading - USGS Site Location Figure.mxd



USGS The National Map: National Boundaries Dataset, National Elevation Dataset, Geographic Names Information System, National Hydrography Dataset, National Land Cover Database, National Structures Dataset, and National Transportation Dataset; U.S. Census Bureau - TIGER/Line; HERE Road Data

LEGEND

Port Reading Site Boundary



NEW JERSEY QUADRANGLE LOCATION:
53 - JERSEY CITY, NEW JERSEY

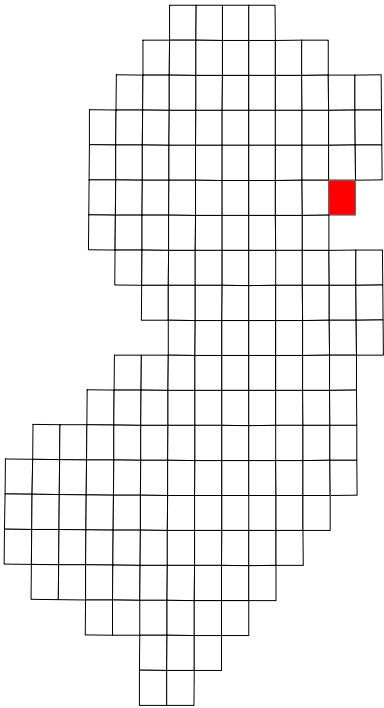


FIGURE 1:
USGS SITE LOCATION MAP

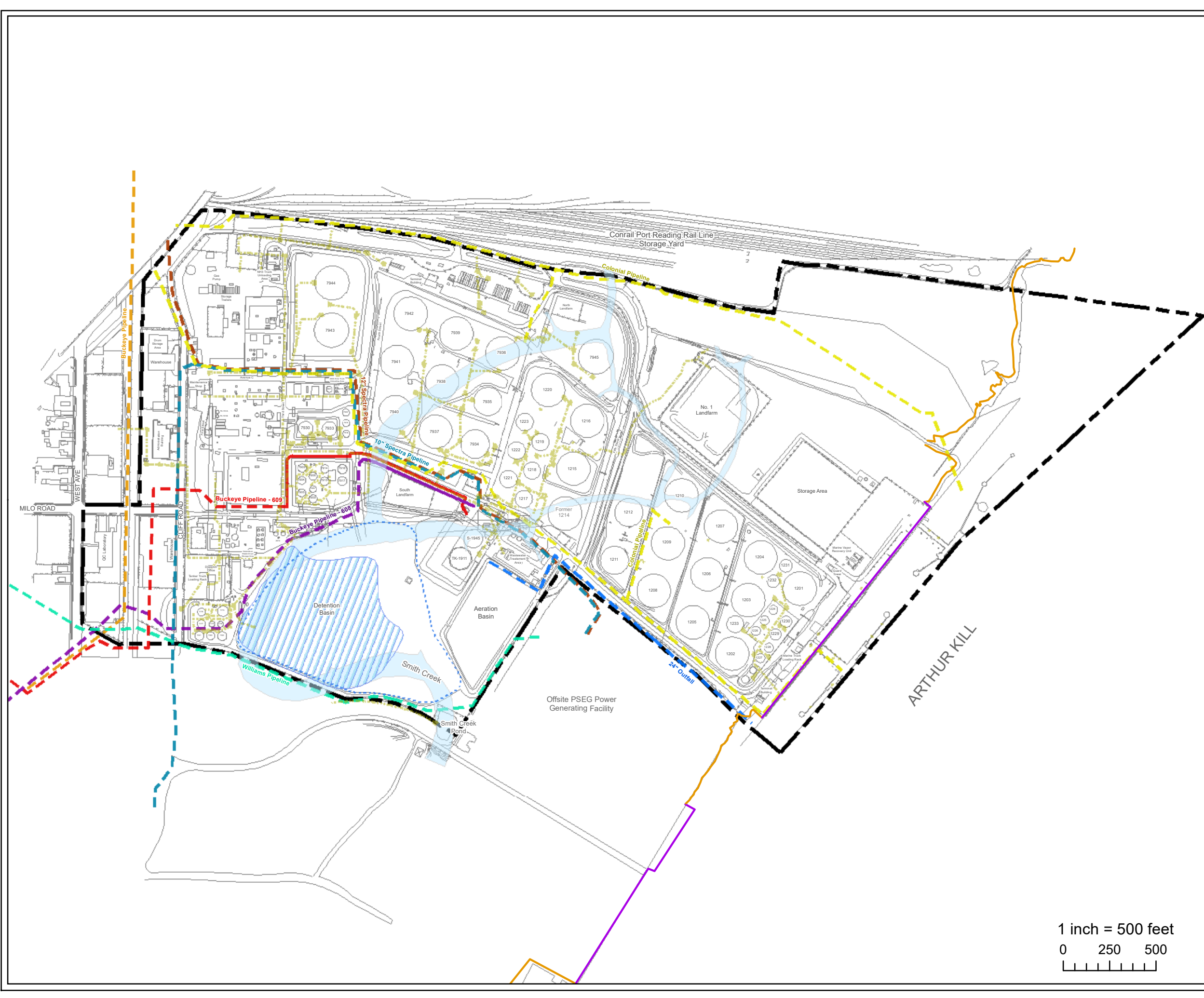
HESS CORPORATION
FORMER PORT READING TERMINAL
750 CLIFF ROAD
PORT READING, NEW JERSEY

Project #:	1114J01	Drawn:	4/16/2020
SRP PI#:	006148	Drawn By:	KJ



Environmental Engineering
1625 Highway 71, Belmar, NJ 07719
T. 732.739.6444 | F. 732.739.0451

This map was developed using New Jersey Department of Environmental Protection Geographic Information System Digital Data, but this secondary product has not been verified by NJDEP and is not state Authorized. Source: NAD 1983 (2011) New Jersey State Plane FIPS 2900 US FT.



LEGEND

- Site Boundary
- AOC 12 Extent
- Basin Present Extents
- Former Smith Creek Channel
- Shoreline
- Bulkhead

Pipelines

- 10" Spectra Natural Gas Pipeline
- 12" Spectra Pipeline
- 24" Outfall
- Buckeye Pipeline
- Buckeye Petroleum Pipeline - 608
- Buckeye Petroleum Pipeline - 609
- Colonial Pipeline
- Williams Pipeline
- Sitewide Utilities/Wastewater

Utility and Pipe Line Note:
- Solid Line: Above-ground
- Dotted Line: Underground

FIGURE: 2
Site Plan

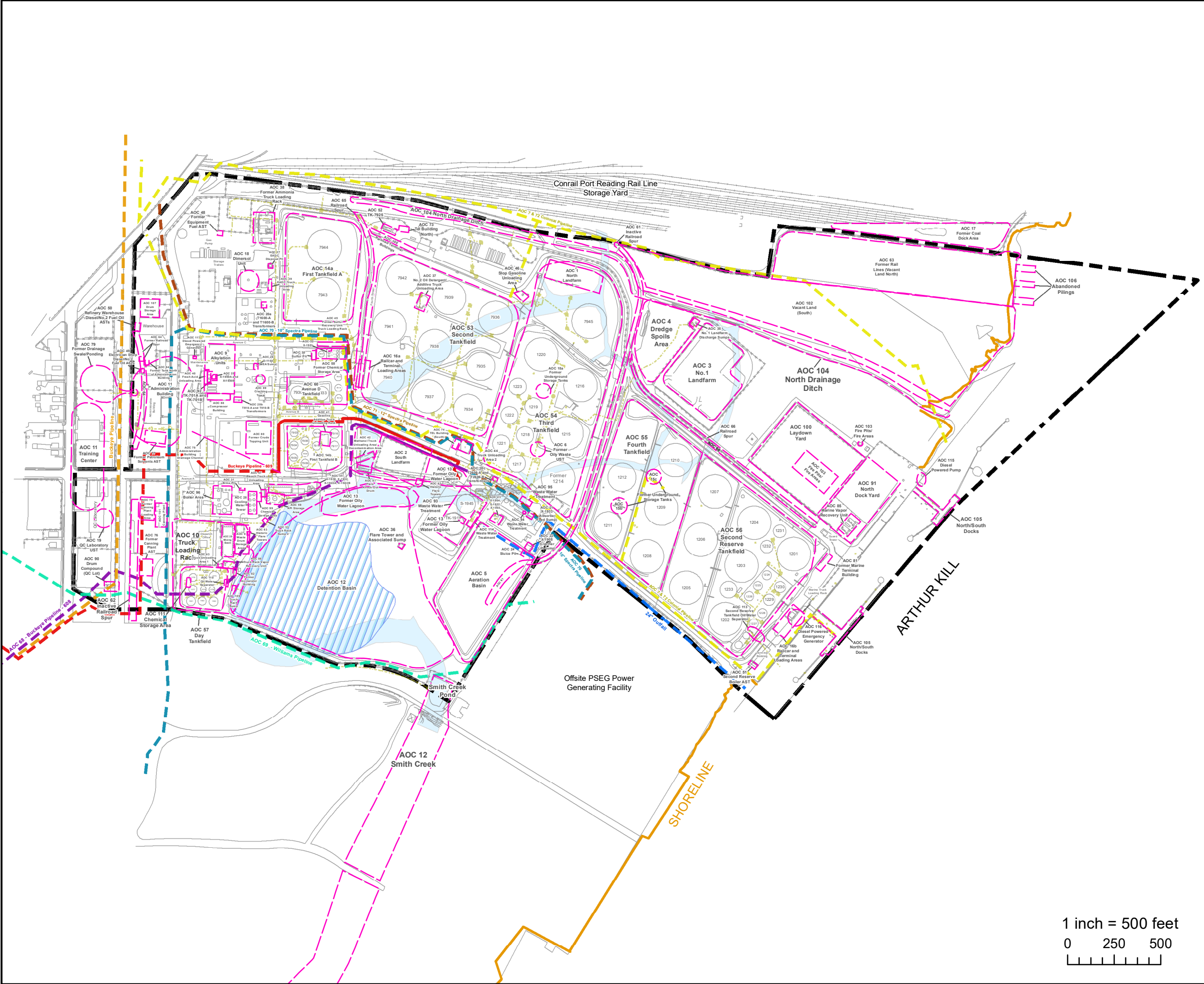
**HESS CORPORATION
FORMER PORT READING COMPLEX
750 CLIFF ROAD
PORT READING, NEW JERSEY**

Project #:	1114J01	Drawn:	03/25/2021
SRP PI#:	006148	Drawn By:	AE



Environmental Engineering
1625 Highway 71, Belmar, NJ 07719
T. 732.739.6444 | F. 732.739.0451

This map was developed using New Jersey Department of Environmental Protection Geographic Information System Digital Data, but this secondary product has not been verified by NJDEP and is not state Authorized. Source: NAD 1983 (2011) New Jersey State Plane FIPS 2900 US FT.



LEGEND

- AOC Boundary
- Sitewide Utilities
- Shoreline
- Site Boundary
- Detention Basin Current Extents
- Former Smith Creek Channel

Pipelines

- 10" Spectra Natural Gas Pipeline
- 12" Spectra Pipeline
- 24" Outfall
- Buckeye Pipeline
- Buckeye Petroleum Pipeline - 608
- Buckeye Petroleum Pipeline - 609
- Colonial Pipeline
- Unknown Pipeline/ Utility
- Williams Pipeline

Pipelines:
- Solid Line: Aboveground
- Dotted Line: Underground

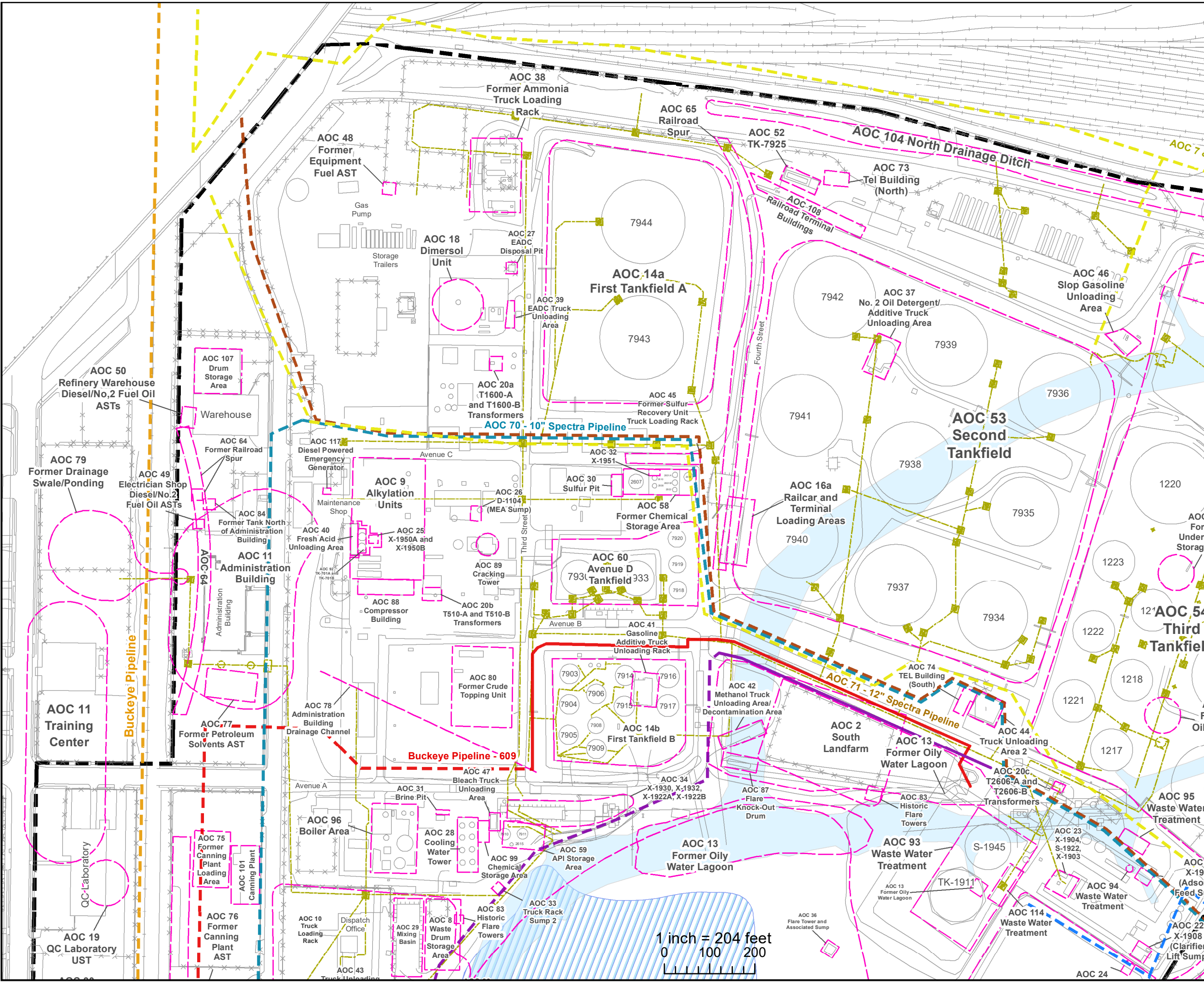
FIGURE: 4
AREAS OF CONCERN MAP

HESS CORPORATION
FORMER PORT READING COMPLEX
750 CLIFF ROAD
PORT READING, NEW JERSEY

Project #:	1114J01	Drawn:	2/24/2021
SRP PI#:	006148	Drawn By:	KJ/RC

Earth Systems
Environmental Engineering
1625 Highway 71, Belmar, NJ 07719
T. 732.739.6444 | F. 732.739.0451

This map was developed using New Jersey Department of Environmental Protection Geographic Information System Digital Data, but this secondary product has not been verified by NJDEP and is not state Authorized. Source: NAD 1983 (2011) New Jersey State Plane FIPS 2900 US FT.



LEGEND

- AOC Boundary
- Sitewide Utilities
- Underground Utility Lines
- Detention Basin Current Extents
- Site Boundary

Pipelines

- 10" Spectra Natural Gas Pipeline
- 12" Spectra Pipeline
- 24" Outfall
- Buckeye Pipeline
- Buckeye Petroleum Pipeline - 608
- Buckeye Petroleum Pipeline - 609
- Colonial Pipeline
- Unknown Pipeline/ Utility
- Williams Pipeline

Pipelines:
Solid Line: Aboveground
Dotted Line: Underground

FIGURE: 4.1

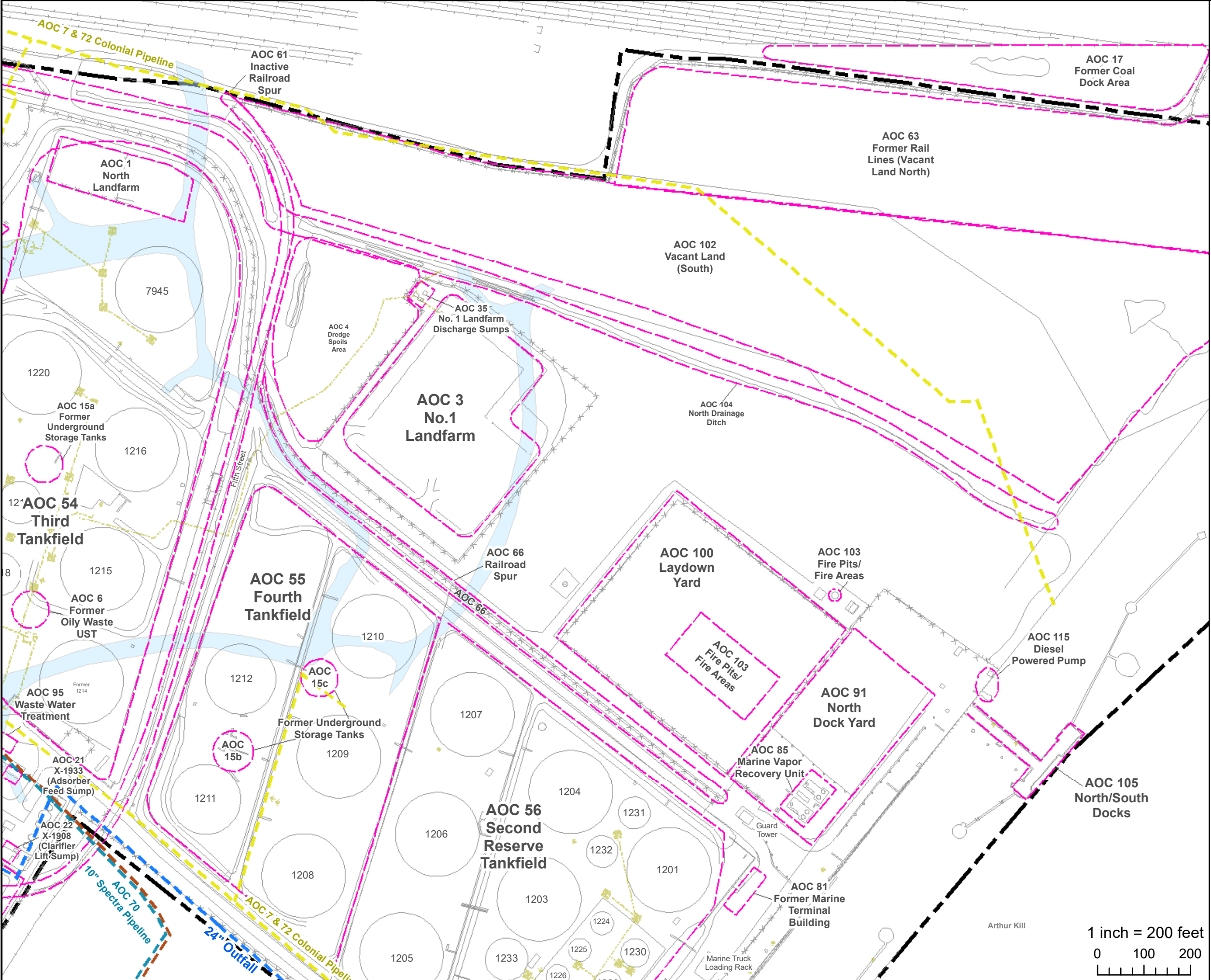
AREAS OF CONCERN MAP

HESS CORPORATION
FORMER PORT READING COMPLEX
750 CLIFF ROAD
PORT READING, NEW JERSEY

Project #:	1114J01	Drawn:	2/25/2021
SRP PI#:	006148	Drawn By:	KJ,RC

Environmental Engineering
1625 Highway 71, Belmar, NJ 07719
T. 732.739.6444 | F. 732.739.0451

This map was developed using New Jersey Department of Environmental Protection Geographic Information System Digital Data, but this secondary product has not been verified by NJDEP and is not state Authorized. Source: NAD 1983 (2011) New Jersey State Plane FIPS 2900 US FT.



LEGEND

- AOC Boundary
- Underground Utility/Wastewater System
- Detention Basin Current Extents
- Site Boundary

Pipelines

- 10" Spectra Natural Gas Pipeline
- 12" Spectra Pipeline
- 24" Outfall
- Buckeye Pipeline
- Buckeye Petroleum Pipeline - 608
- Buckeye Petroleum Pipeline - 609
- Colonial Pipeline
- Unknown Pipeline/ Utility
- Williams Pipeline

Pipelines:
- Solid Line: Aboveground
- Dotted Line: Underground

FIGURE: 4.2

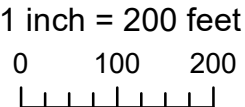
AREAS OF CONCERN MAP

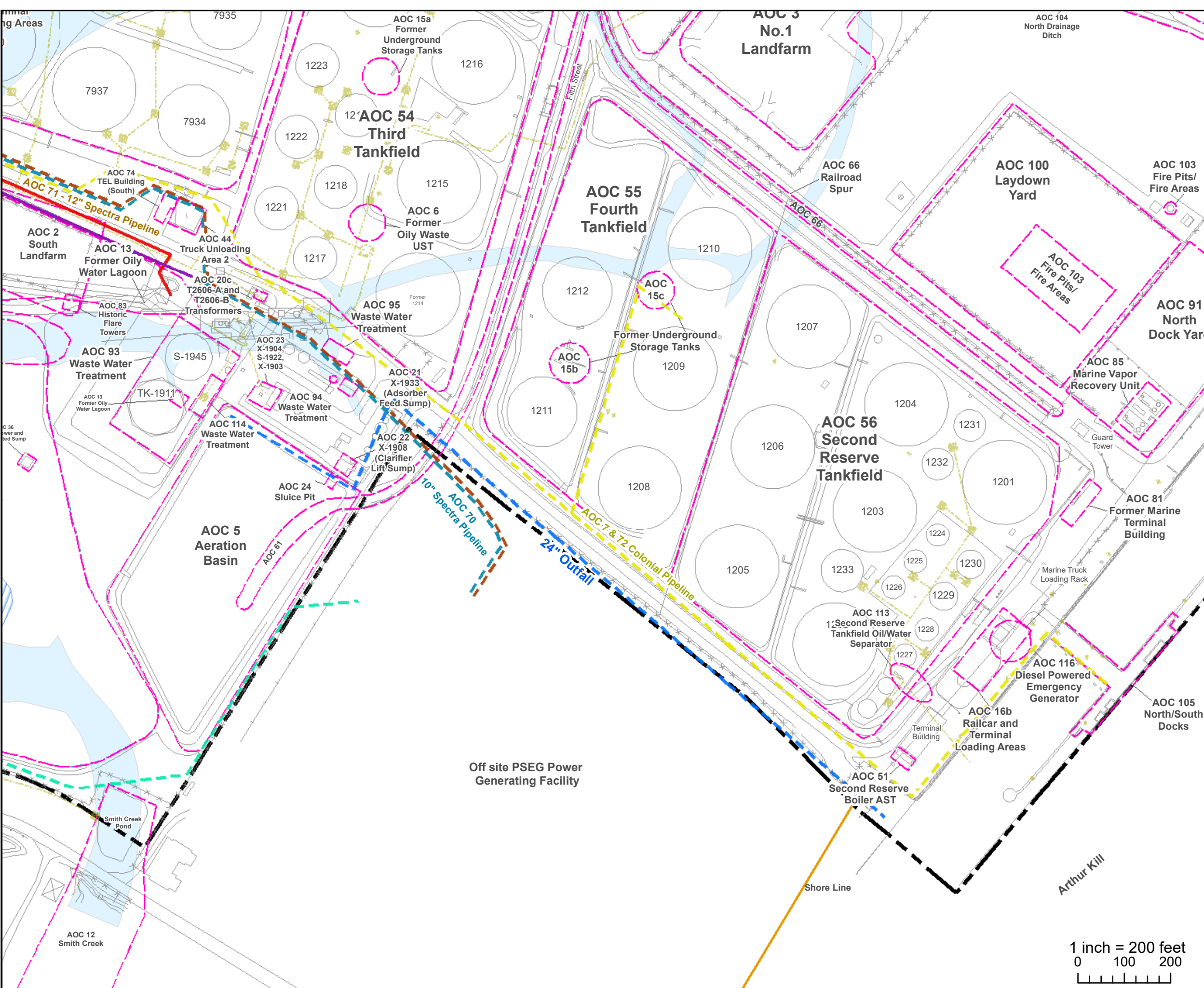
HESS CORPORATION
FORMER PORT READING COMPLEX
750 CLIFF ROAD
PORT READING, NEW JERSEY

Project #:	1114J01	Drawn:	2/26/2021
SRP PI#:	006148	Drawn By:	KJ,RC

Earth Systems
Environmental Engineering
1625 Highway 71, Belmar, NJ 07719
T. 732.739.6444 | F. 732.739.0451

This map was developed using New Jersey Department of Environmental Protection Geographic Information System Digital Data, but this secondary product has not been verified by NJDEP and is not state Authorized. Source: NAD 1983 (2011) New Jersey State Plane FIPS 2900 US FT.





LEGEND

AOC Boundary

Underground Utility/Wastewater System

Detention Basin Current Extents

Site Boundary

Pipelines

10" Spectra Natural Gas Pipeline

12" Spectra Pipeline

24" Outfall

Buckeye Pipeline

Buckeye Petroleum Pipeline - 608

Buckeye Petroleum Pipeline - 609

Colonial Pipeline

Unknown Pipeline/ Utility

Williams Pipeline

Pipelines:

- Solid Line: Aboveground

- Dotted Line: Underground

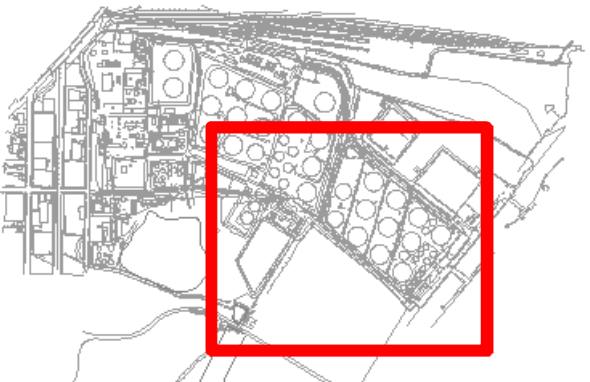


FIGURE: 4.3
AREAS OF CONCERN MAP


HESS CORPORATION
FORMER PORT READING COMPLEX
750 CLIFF ROAD
PORT READING, NEW JERSEY

Project #: 1114J01

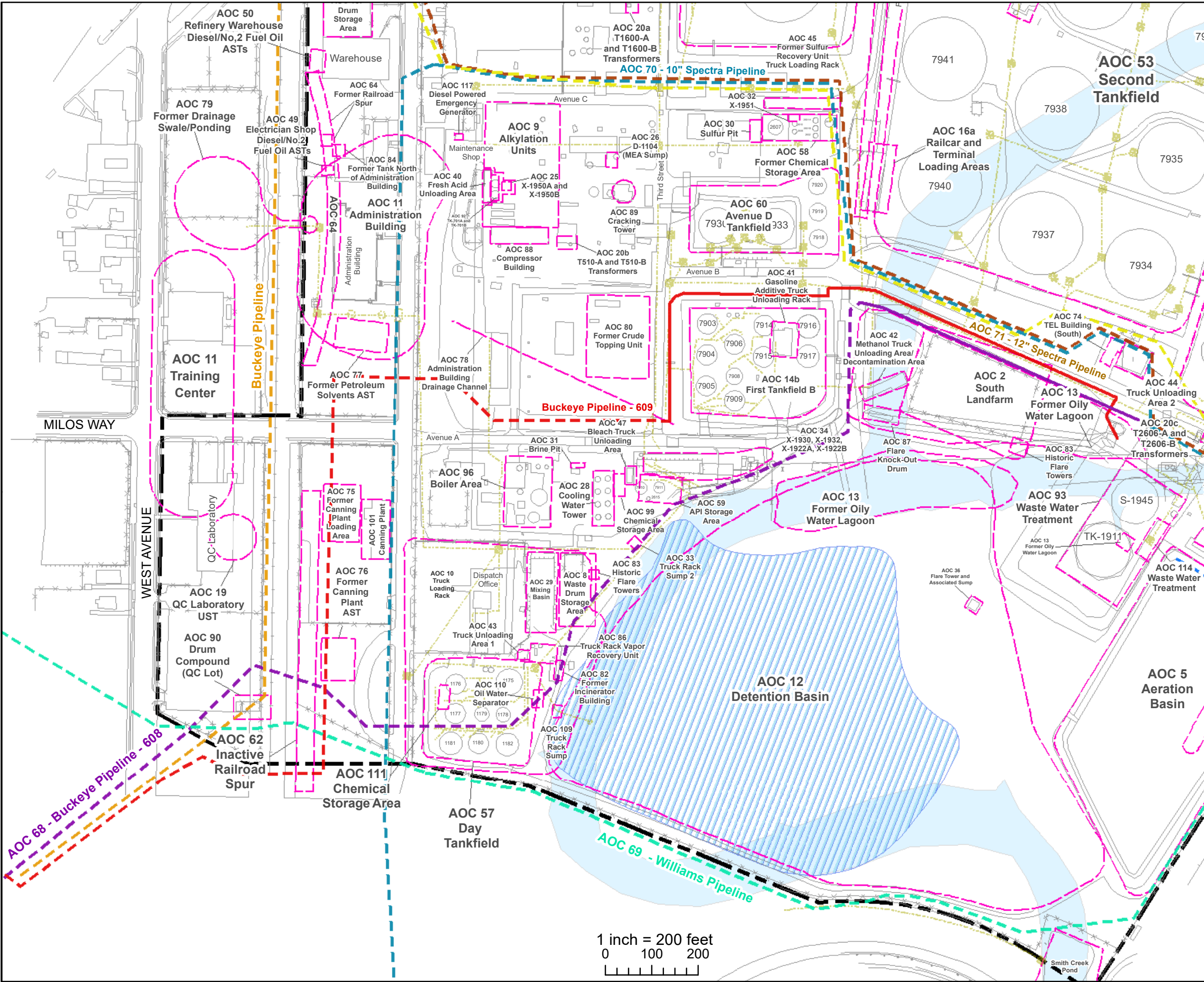
Drawn: 2/23/2021

SRP PI#: 006148

Drawn By: KJ,RC


Earth Systems
Environmental Engineering
1625 Highway 71, Belmar, NJ 07719
T. 732.739.6444 | F. 732.739.0451

This map was developed using New Jersey Department of Environmental Protection Geographic Information System Digital Data, but this secondary product has not been verified by NJDEP and is not state Authorized. Source: NAD 1983 (2011) New Jersey State Plane FIPS 2900 US FT.



LEGEND

- AOC Boundary
 - Underground Utility/Wastewater System
 - Detention Basin Current Extents
 - Site Boundary
- Pipelines**
- 10" Spectra Natural Gas Pipeline
 - 12" Spectra Pipeline
 - 24" Outfall
 - Buckeye Pipeline
 - Buckeye Petroleum Pipeline - 608
 - Buckeye Petroleum Pipeline - 609
 - Colonial Pipeline
 - Unknown Pipeline/ Utility
 - Williams Pipeline
- Pipelines:
- Solid Line: Aboveground
- Dotted Line: Underground

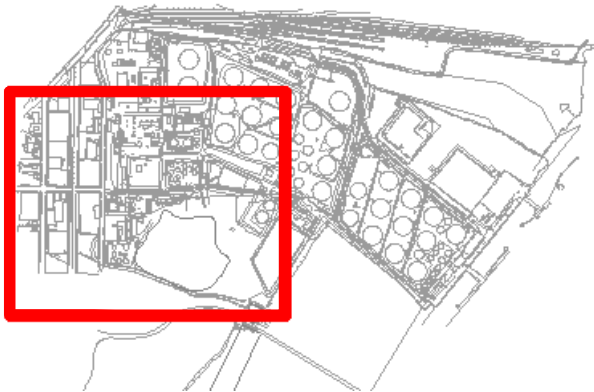


FIGURE: 4.4
AREAS OF CONCERN MAP

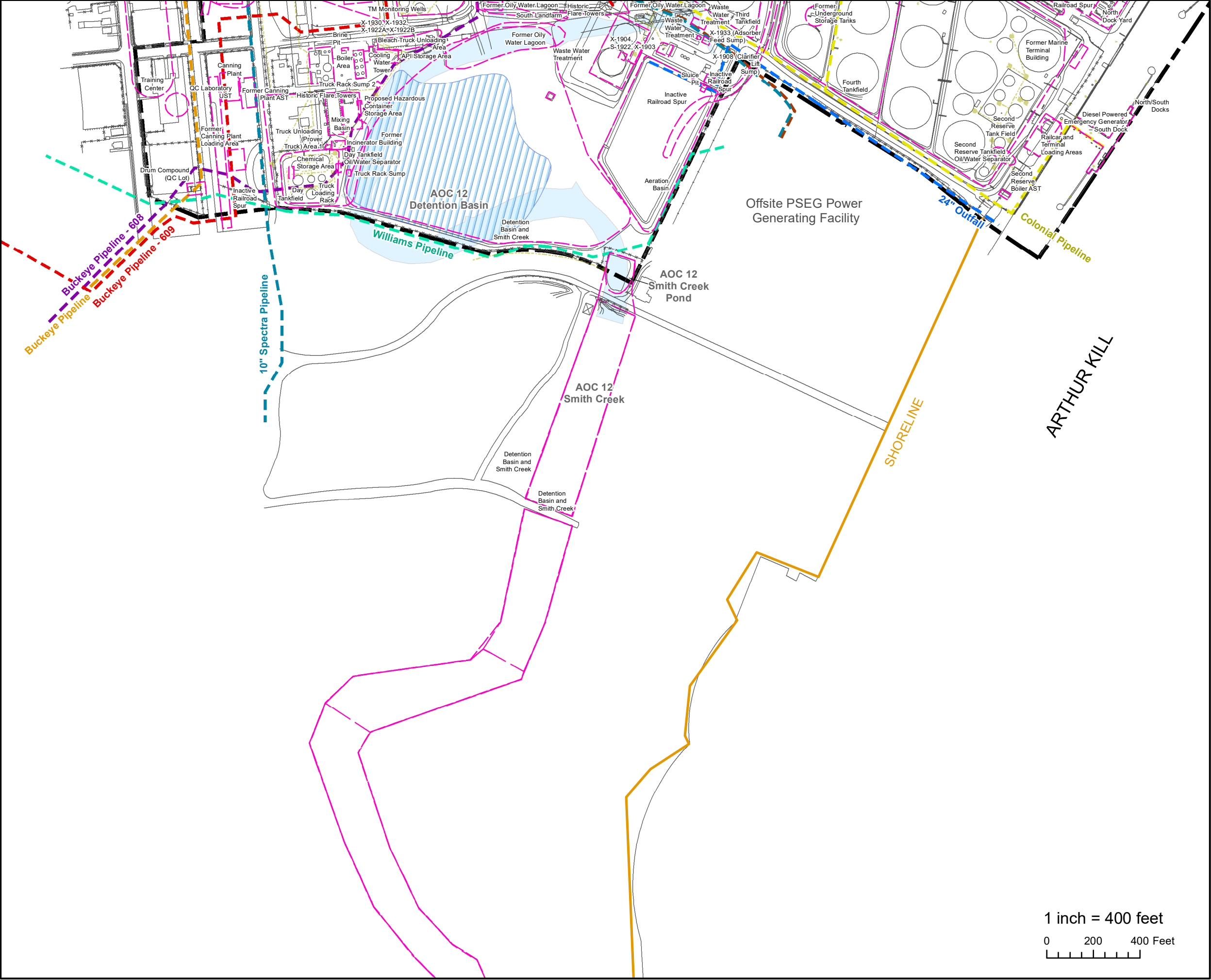
HESS CORPORATION
FORMER PORT READING COMPLEX
750 CLIFF ROAD
PORT READING, NEW JERSEY

Project #:	1114J01	Drawn:	2/23/2021
SRP PI#:	006148	Drawn By:	KJ,RC

Earth Systems
Environmental Engineering
1625 Highway 71, Belmar, NJ 07719
T. 732.739.6444 | F. 732.739.0451

This map was developed using New Jersey Department of Environmental Protection Geographic Information System Digital Data, but this secondary product has not been verified by NJDEP and is not state Authorized. Source: NAD 1983 (2011) New Jersey State Plane FIPS 2900 US FT.

1 inch = 200 feet
0 100 200



LEGEND

AOC Boundary

Sitewide Utility/Wastewater System

Shoreline

Site Boundary

Detention Basin Current Extents

Pipelines

10" Spectra Natural Gas Pipeline

12" Spectra Pipeline

24" Outfall

Buckeye Pipeline

Buckeye Petroleum Pipeline - 608

Buckeye Petroleum Pipeline - 609

Colonial Pipeline

Unknown Pipeline/ Utility

Williams Pipeline

Pipelines:

- Solid Line: Aboveground

- Dotted Line: Underground

FIGURE: 4.5
AREAS OF CONCERN MAP

HESS CORPORATION
FORMER PORT READING COMPLEX
750 CLIFF ROAD
PORT READING, NEW JERSEY

Project #:	1114J01	Drawn:	2/25/2021
SRP PI#:	006148	Drawn By:	KJ,AE

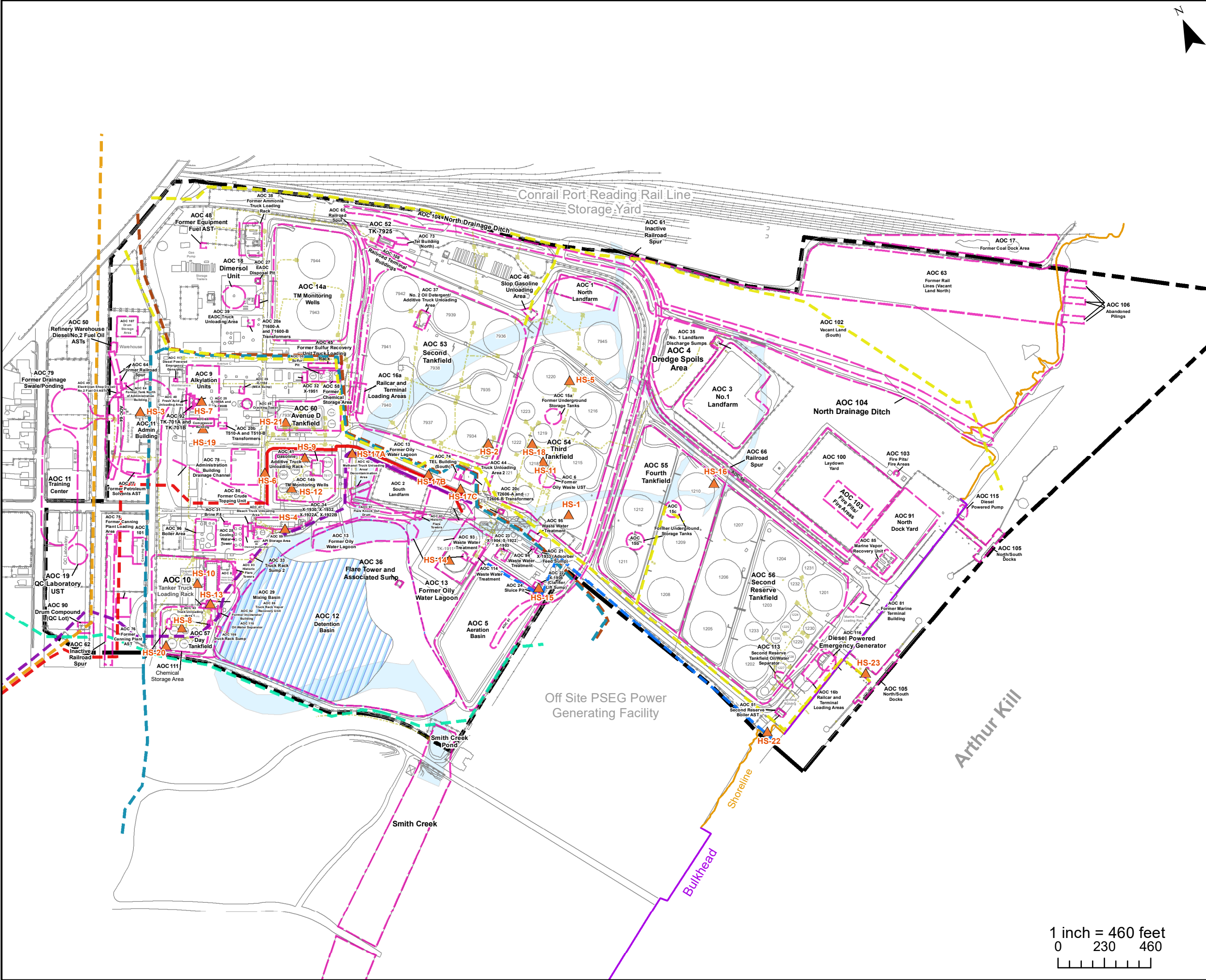
Earth Systems

Environmental Engineering

1625 Highway 71, Belmar, NJ 07719

T. 732.739.6444 | F. 732.739.0451

This map was developed using New Jersey Department of Environmental Protection Geographic Information System Digital Data, but this secondary product has not been verified by NJDEP and is not state Authorized. Source: NAD 1983 (2011) New Jersey State Plane FIPS 2900 US FT.



Legend

- Historical Spill Locations
- AOC Boundary
- Site Boundary
- Former Smith Creek Channel
- Detention Basin Historic Extents
- Detention Basin Current Extents
- Shoreline
- Bulkhead
- Pipelines**
 - 10" Spectra Natural Gas Pipeline
 - 12" Spectra Pipeline
 - 24" Outfall
 - Buckeye Pipeline
 - Buckeye Petroleum Pipeline - 608
 - Buckeye Petroleum Pipeline - 609
 - Colonial Pipeline
 - Unknown Pipeline/ Utility
 - Williams Pipeline
 - Sitewide Utilities

Pipelines:
- Solid Line: Aboveground
- Dotted Line: Underground

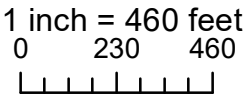
FIGURE: 5
Historic Spill Location Map

HESS CORPORATION
FORMER PORT READING COMPLEX
750 CLIFF ROAD
PORT READING, NEW JERSEY

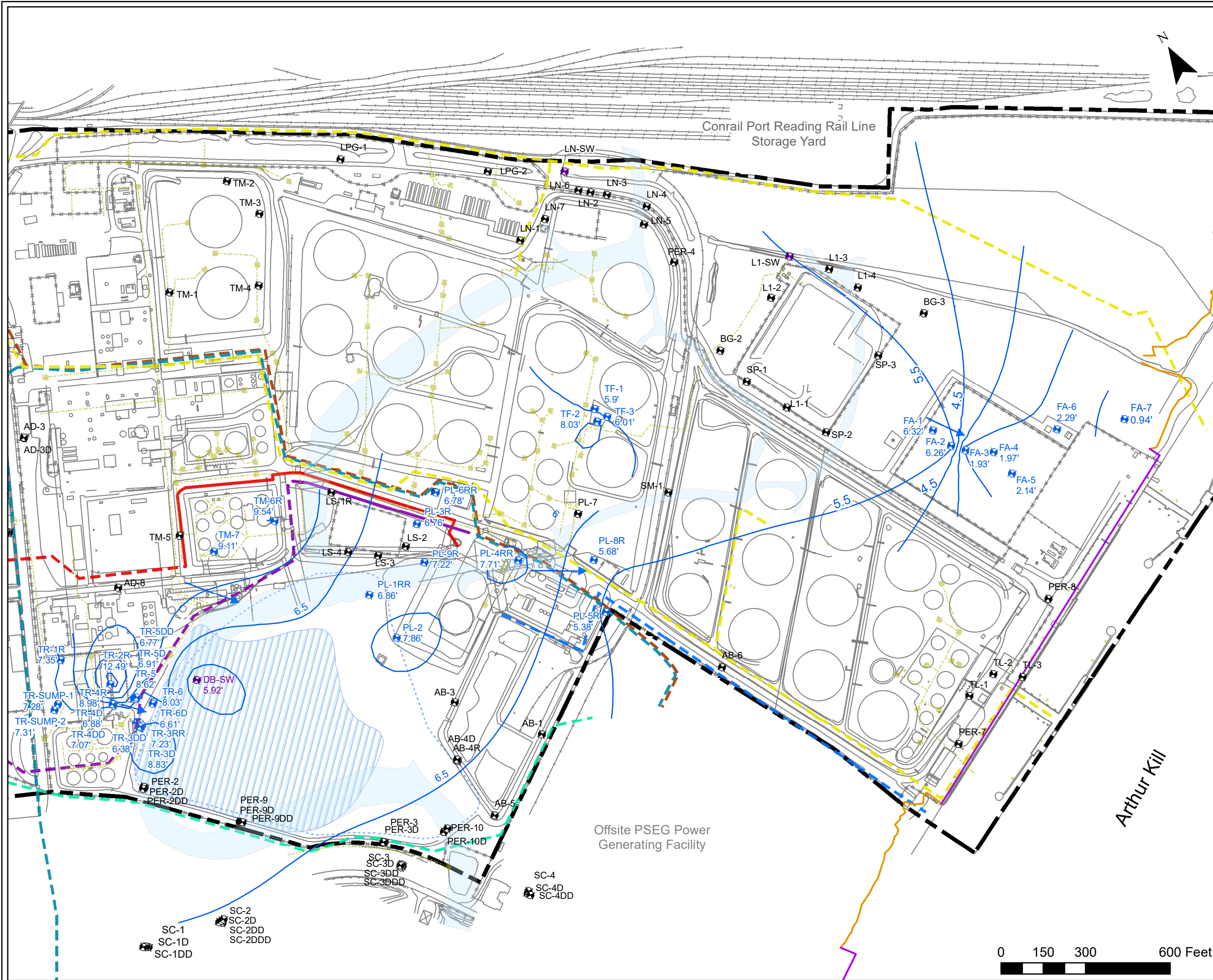
Project #:	1114J01	Drawn:	04/13/2021
SRP PI#:	006148	Drawn By:	AE



Earth Systems
Environmental Engineering
1625 Highway 71, Belmar, NJ 07719
T. 732.739.6444 | F. 732.739.0451



This map was developed using New Jersey Department of Environmental Protection Geographic Information System Digital Data, but this secondary product has not been verified by NJDEP and is not state Authorized. Source: NAD 1983 (2011) New Jersey State Plane FIPS 2900 US FT.



LEGEND

-
- Groundwater Elevation Contour
 Groundwater Flow Direction
 Gauged Monitoring Well
 Monitoring Well
 Surface Water Gauge
 Site Boundary
 AOC 12 Extent
 Basin Present Extents
 Former Smith Creek Channel
 Shoreline
- Pipelines**
- 10" Spectra Natural Gas Pipeline
 12" Spectra Pipeline
 24" Outfall
 Buckeye Pipeline
 Buckeye Petroleum Pipeline - 608
 Buckeye Petroleum Pipeline - 609
 Colonial Pipeline
 Unknown Pipeline/ Utility
 Williams Pipeline
 Sitewide Utilities

FIGURE: 6
JULY 2021
MONTHLY GAUGING
GROUNDWATER ELEVATION CONTOUR

**HESS CORPORATION
FORMER PORT READING COMPLEX
750 CLIFF ROAD
PORT READING, NEW JERSEY**

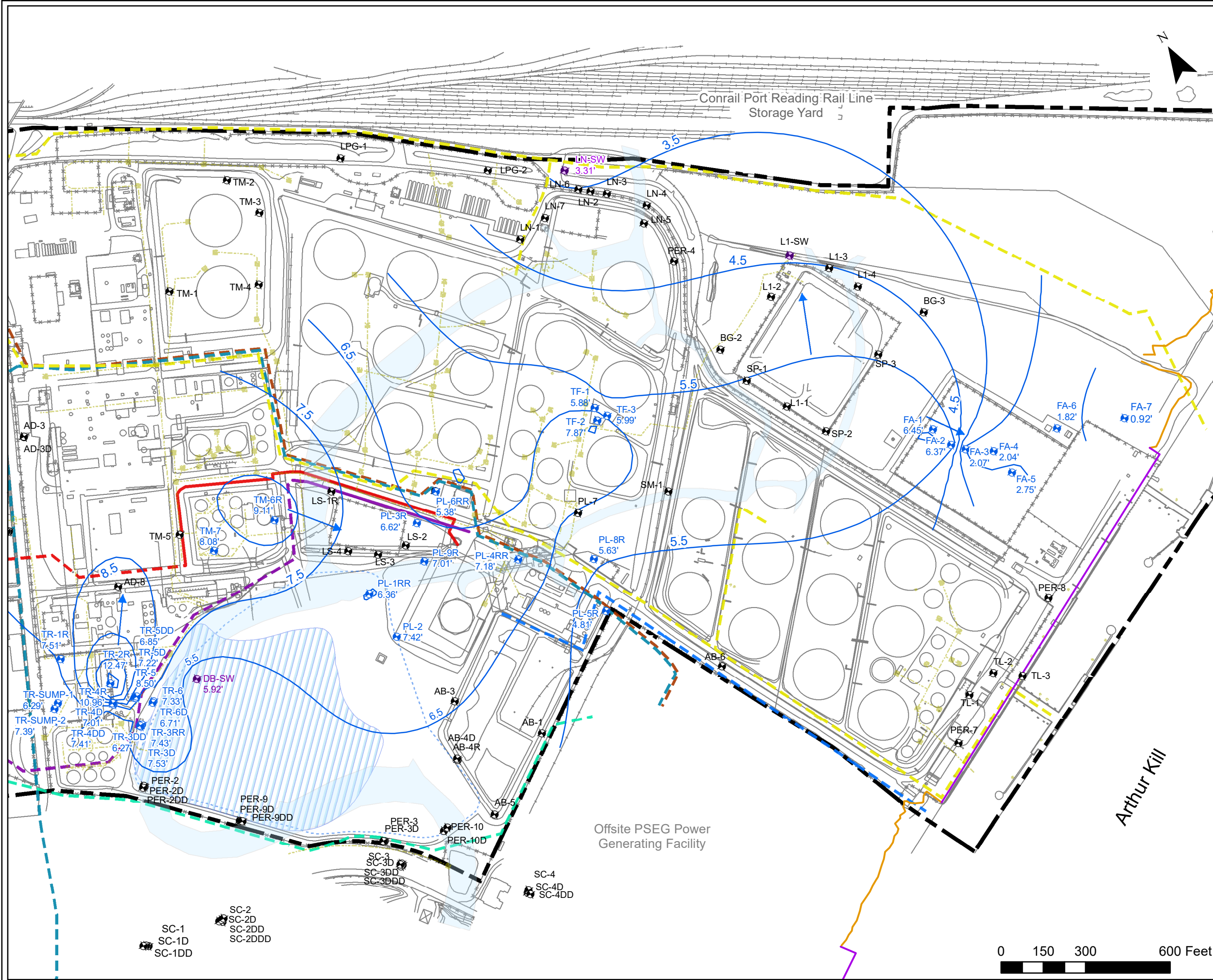
Project #:	1114J01	Drawn:	07/08/2021
-------------------	---------	---------------	------------

SRP PI#:	006148	Drawn By:	AE
-----------------	--------	------------------	----

Earth Systems

Environmental Engineering
1625 Highway 71, Belmar, NJ 07719
T. 732.739.6444 | F. 732.739.0451

This map was developed using New Jersey Department of Environmental Protection Geographic Information System Digital Data, but this secondary product has not been verified by NJDEP and is not state Authorized.
Source: NAD 1983 (2011) New Jersey State Plane FIPS 2900 US FT.



LEGEND

- Groundwater Elevation Contour
- Groundwater Flow Direction
- Gauged Monitoring Well
- Monitoring Well
- Surface Water Gauge
- Site Boundary
- AOC 12 Extent
- Detention Basin Present Extents
- Former Smith Creek Channel
- Shoreline
- Bulkhead
- Pipelines**
 - 10" Spectra Natural Gas Pipeline
 - 12" Spectra Pipeline
 - 24" Outfall
 - Buckeye Pipeline
 - Buckeye Petroleum Pipeline - 608
 - Buckeye Petroleum Pipeline - 609
 - Colonial Pipeline
 - Unknown Pipeline/ Utility
 - Williams Pipeline
 - Sitewide Utilities

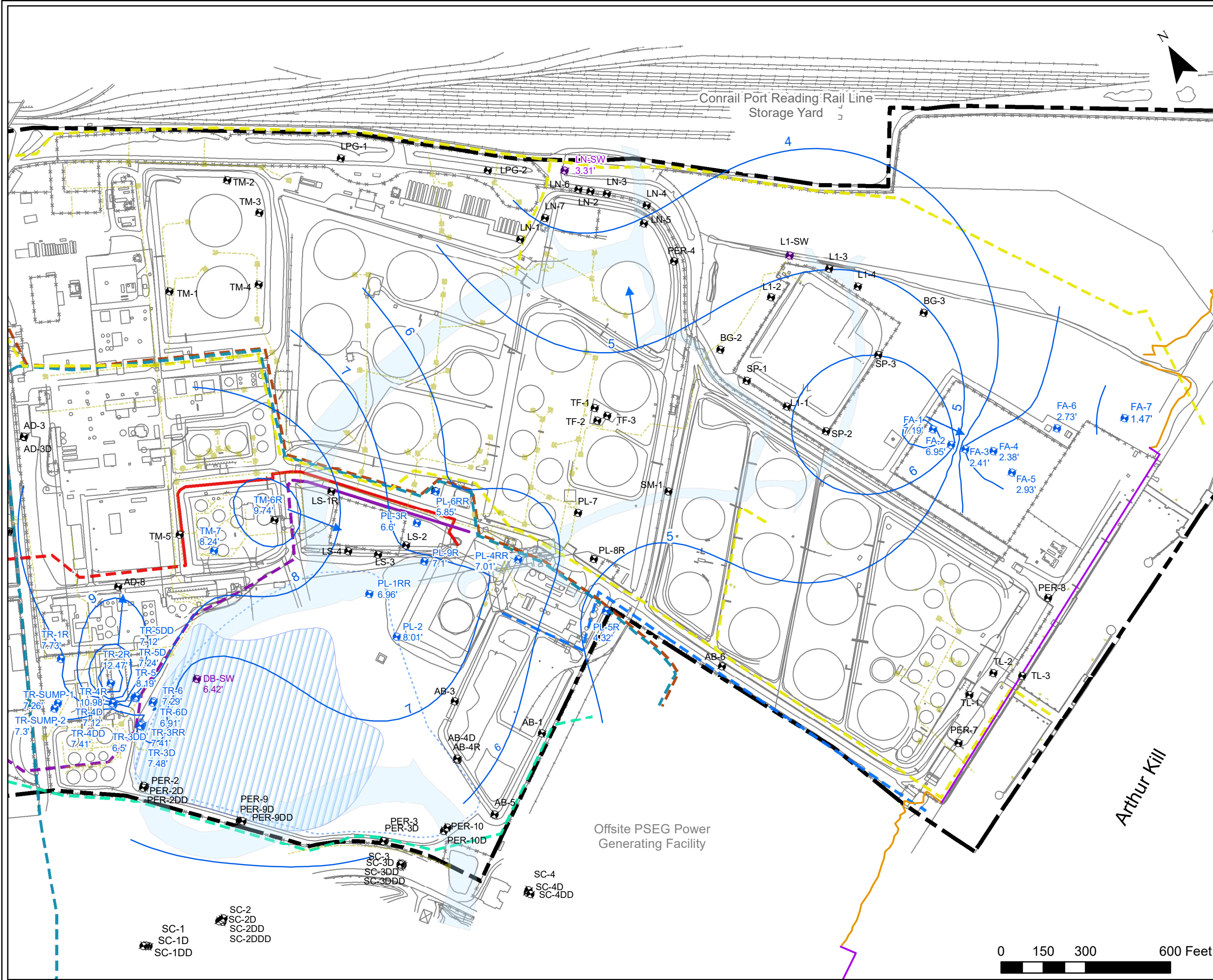
FIGURE: 7
AUGUST 2021
MONTHLY GAUGING
GROUNDWATER ELEVATION CONTOUR

HESS CORPORATION
FORMER PORT READING COMPLEX
750 CLIFF ROAD
PORT READING, NEW JERSEY

Project #:	1114J01	Drawn:	08/19/2021
SRP PI#:	006148	Drawn By:	AE

Earth Systems
Environmental Engineering
1625 Highway 71, Belmar, NJ 07719
T. 732.739.6444 | F. 732.739.0451

This map was developed using New Jersey Department of Environmental Protection Geographic Information System Digital Data, but this secondary product has not been verified by NJDEP and is not state Authorized. Source: NAD 1983 (2011) New Jersey State Plane FIPS 2900 US FT.



LEGEND

- Groundwater Elevation Contour
- Groundwater Flow Direction
- Gauged Monitoring Well
- Monitoring Well
- Surface Water Gauge
- Site Boundary
- AOC 12 Extent
- Detention Basin Present Extents
- Former Smith Creek Channel
- Shoreline
- Bulkhead

Pipelines

- 10" Spectra Natural Gas Pipeline
- 12" Spectra Pipeline
- 24" Outfall
- Buckeye Pipeline
- Buckeye Petroleum Pipeline - 608
- Buckeye Petroleum Pipeline - 609
- Colonial Pipeline
- Unknown Pipeline/ Utility
- Williams Pipeline
- Sitewide Utilities

FIGURE: 8
SEPTEMBER 2021
MONTHLY GAUGING
GROUNDWATER ELEVATION CONTOUR

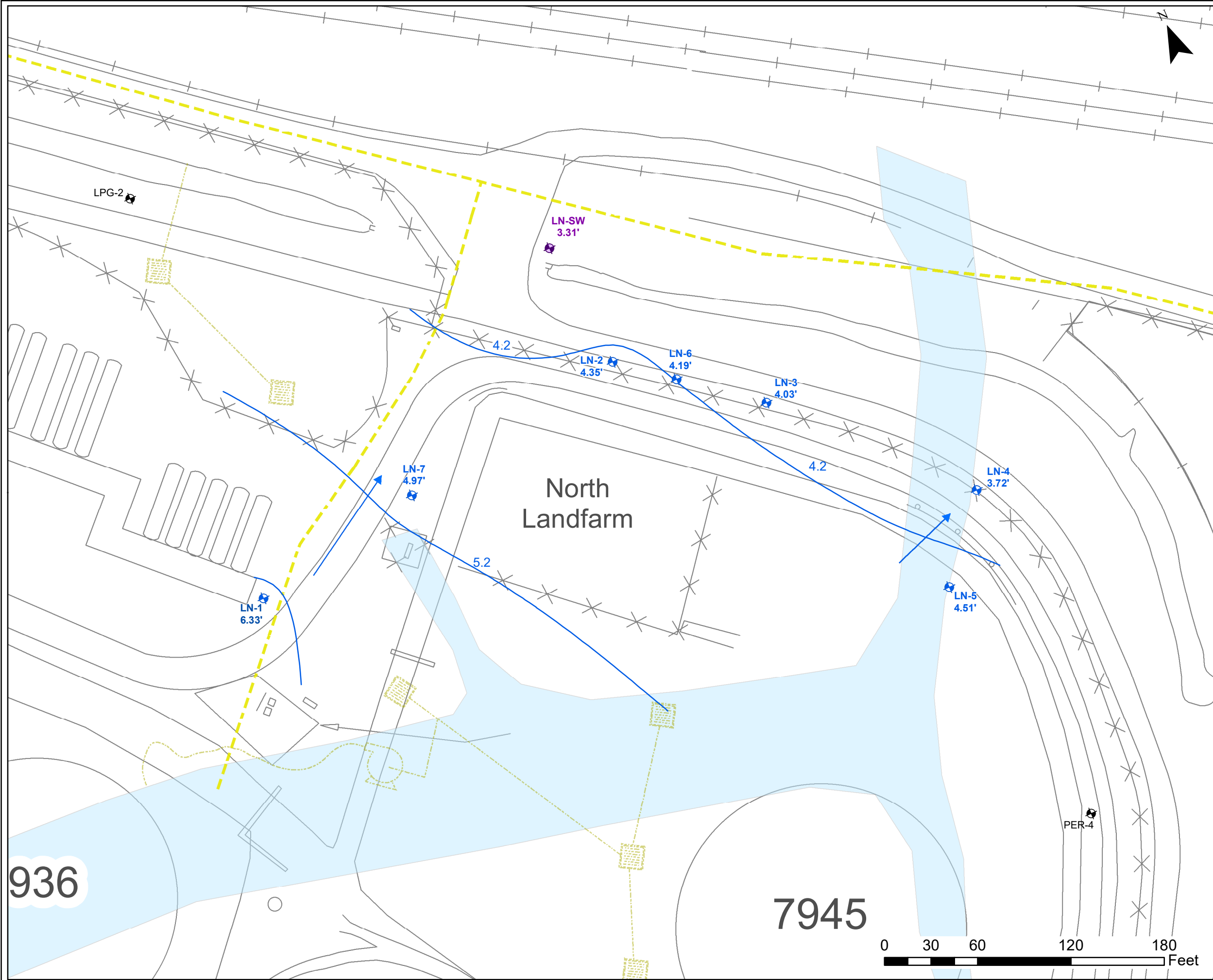
HESS CORPORATION
FORMER PORT READING COMPLEX
750 CLIFF ROAD
PORT READING, NEW JERSEY

Project #:	1114J01	Drawn:	10/25/2021
SRP PI#:	006148	Drawn By:	AE



Earth Systems
Environmental Engineering
1625 Highway 71, Belmar, NJ 07719
T. 732.739.6444 | F. 732.739.0451

This map was developed using New Jersey Department of Environmental Protection Geographic Information System Digital Data, but this secondary product has not been verified by NJDEP and is not state Authorized. Source: NAD 1983 (2011) New Jersey State Plane FIPS 2900 US FT.



LEGEND

- Surface Water Gauges
- North Landfarm Monitoring Well
- Monitoring Well
- Groundwater Elevation Contour
- Groundwater Flow Direction
- Former Smith Creek Channel
- Colonial Pipeline
- Sitewide Utilities

NOTE:
1. All wells gauged on July 12, 2021

FIGURE: 9
JULY 2021
NORTH LANDFARM
GROUNDWATER ELEVATION CONTOUR

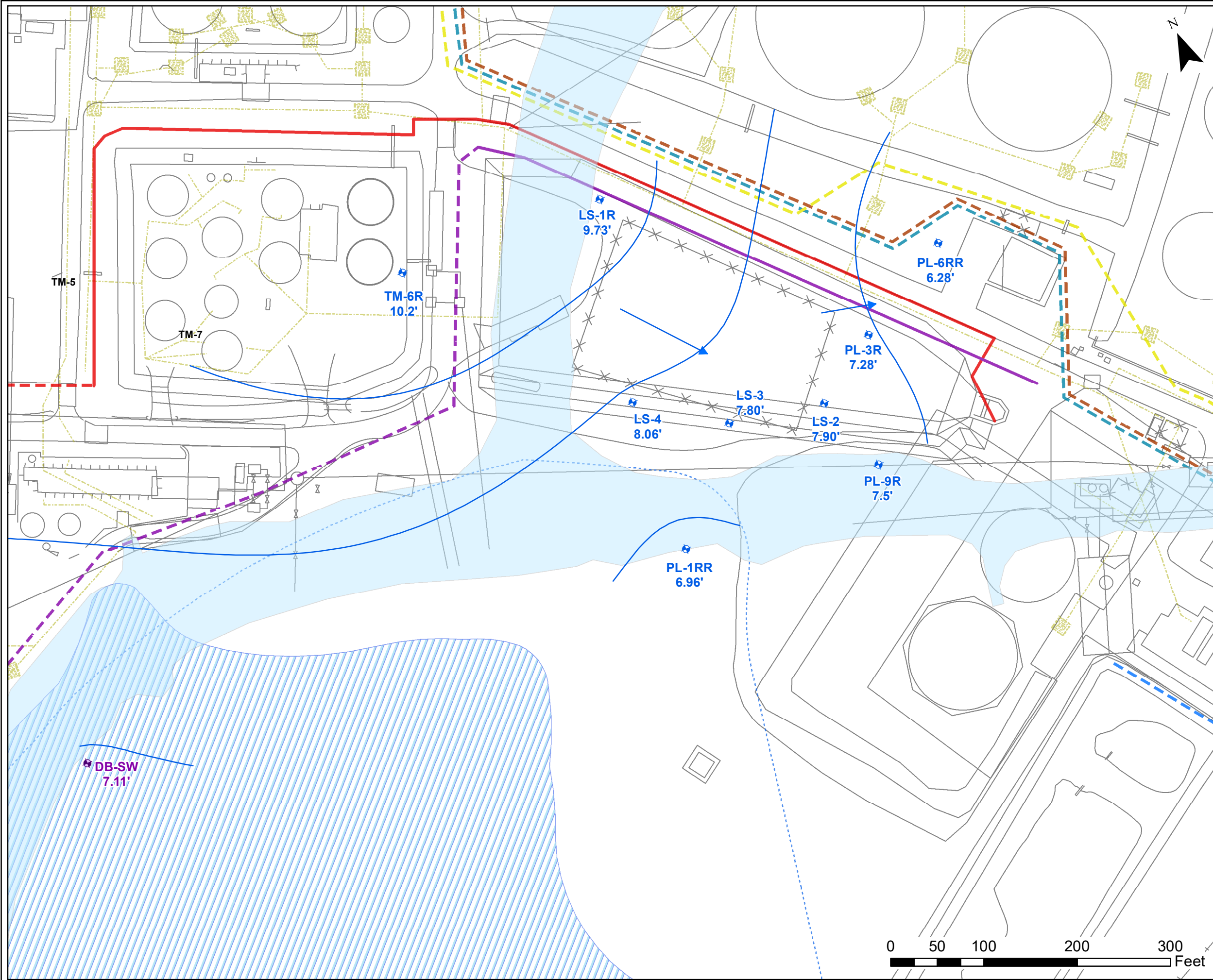
HESS CORPORATION
FORMER PORT READING COMPLEX
750 CLIFF ROAD
PORT READING, NEW JERSEY

Project #:	1114J01	Drawn:	07/12/2021
SRP PI#:	006148	Drawn By:	AE



Environmental Engineering
1625 Highway 71, Belmar, NJ 07719
T. 732.739.6444 | F. 732.739.0451

This map was developed using New Jersey Department of Environmental Protection Geographic Information System Digital Data, but this secondary product has not been verified by NJDEP and is not state Authorized. Source: NAD 1983 (2011) New Jersey State Plane FIPS 2900 US FT.



LEGEND


- Surface Water Gauge
- Gauged Monitoring Well
- Monitoring Well
- Groundwater Elevation Contour
- Groundwater Flow Direction
- Former Smith Creek Channel
- AOC 12 Extent
- Basin Present Extents
- 10" Spectra Natural Gas Pipeline
- 12" Spectra Pipeline
- 24" Outfall
- Buckeye Pipeline
- Buckeye Petroleum Pipeline - 608
- Buckeye Petroleum Pipeline - 609
- Colonial Pipeline
- Unknown Pipeline/ Utility
- Williams Pipeline
- Sitewide Utilities

NOTE:
1. All wells gauged on July 12, 2021

FIGURE: 10
July 2021
SOUTH LANDFARM
GROUNDWATER ELEVATION CONTOUR

HESS CORPORATION
FORMER PORT READING COMPLEX
750 CLIFF ROAD
PORT READING, NEW JERSEY

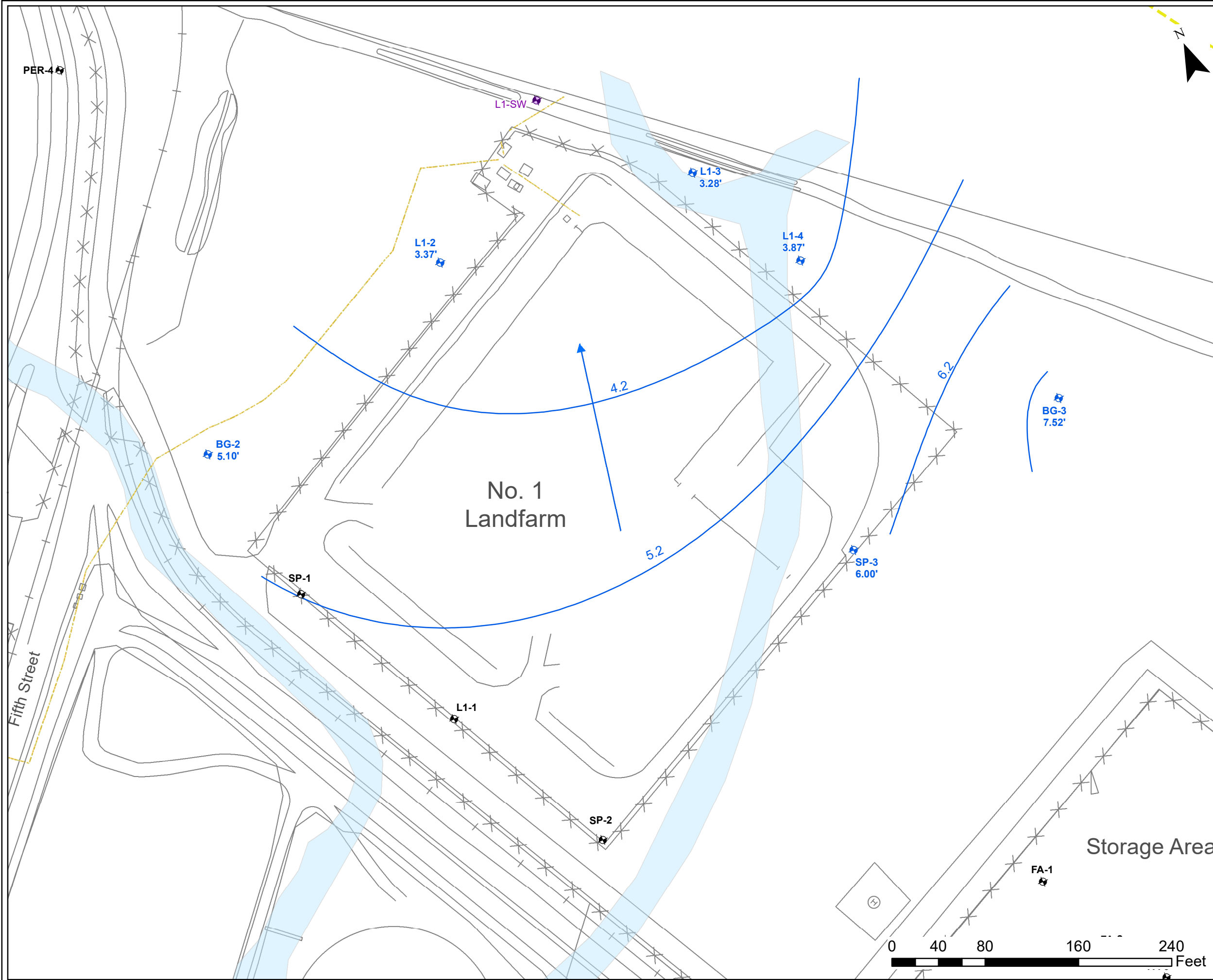
Project #:	1114J01	Drawn:	07/12/2021
SRP PI#:	006148	Drawn By:	AE



Earth Systems
Environmental Engineering

1625 Highway 71, Belmar, NJ 07719
T. 732.739.6444 | F. 732.739.0451

This map was developed using New Jersey Department of Environmental Protection Geographic Information System Digital Data, but this secondary product has not been verified by NJDEP and is not state Authorized. Source: NAD 1983 (2011) New Jersey State Plane FIPS 2900 US FT.



LEGEND

- Surface Water Gauge
- Gauged Monitoring Well
- Monitoring Well
- Groundwater Elevation Contour
- Groundwater Flow Direction
- Former Smith Creek Channel
- Underground Utility Lines

NOTE:

1. All wells gauged on July 12, 2021
2. L1-1, SP-1 and SP-2 could not be gauged because of site activities.

FIGURE: 11
July 2021
NUMBER 1 LANDFARM
GROUNDWATER ELEVATION CONTOUR

HESS CORPORATION
FORMER PORT READING COMPLEX
750 CLIFF ROAD
PORT READING, NEW JERSEY

Project #:	1114J01	Drawn:	07/12/2021
SRP PI#:	006148	Drawn By:	AE



Environmental Engineering

1625 Highway 71, Belmar, NJ 07719
T. 732.739.6444 | F. 732.739.0451

This map was developed using New Jersey Department of Environmental Protection Geographic Information System Digital Data, but this secondary product has not been verified by NJDEP and is not state Authorized. Source: NAD 1983 (2011) New Jersey State Plane FIPS 2900 US FT.

Tables

Table 1
Hess Corporation Port Reading Terminal
750 Cliff Road, Port Reading, New Jersey
Monthly Groundwater Gauging

Groundwater Gauging Data											
Well I.D.	Date	Time	Depth to LNAPL (ft)	Depth to Water (ft)	LNAPL Thickness (ft)	DTB from TOC (ft)	TOC Elevation (ft amsl)	Groundwater Elevation (ft amsl)	PID	Notes	
PL-1RR	7/6/2021	-	0.50	-	-	15.20	7.36	6.86	1.0	Discontinuous Sheen, Sock fully absorbed, Replaced sock	
	7/30/2021	-	0.85	-	-	15.20	7.36	6.51	13.0	Discontinuous Sheen, Sock 1/4 absorbed	
	8/16/2021	-	1.00	-	-	14.90	7.36	6.36	1.2	Discontinuous Sheen, Sock fully absorbed, Replaced sock	
	8/26/2021	-	NM	-	-	15.00	7.36	NA	NM	Underwater	
	9/10/2021	-	NM	-	-	14.90	7.36	NA	NM	Underwater	
	9/22/2021	-	0.4	-	-	14.90	7.36	6.96	1.0	Discontinuous Sheen, Sock fully absorbed, Replaced sock	
PL-2	7/6/2021	-	1.72	-	-	17.40	9.58	7.88	2.1	Iron Sheen on water surface	
	7/30/2021	-	2.10	-	-	17.39	9.58	7.48	25.0		
	8/16/2021	-	2.16	-	-	16.86	9.58	7.42	14.2		
	8/26/2021	-	1.90	-	-	17.40	9.58	7.68	0.4		
	9/10/2021	-	1.76	-	-	17.40	9.58	7.82	25.2		
	9/22/2021	-	1.57	-	-	17.40	9.58	8.01	12.8		
PL-3R	7/6/2021	-	3.40	-	-	19.30	10.16	6.76	0.0		
	7/30/2021	-	3.51	-	-	19.30	10.16	6.65	0.0		
	8/16/2021	-	3.54	-	-	19.30	10.16	6.62	0.0		
	8/26/2021	-	3.23	-	-	19.10	10.16	6.93	0.0		
	9/10/2021	-	3.17	-	-	19.08	10.16	6.99	0.0		
	9/22/2021	-	3.56	-	-	19.09	10.16	6.60	0.0		
PL-4RR	7/6/2021	-	3.85	-	-	13.00	11.56	7.71	0.0		
	7/30/2021	-	4.01	-	-	13.00	11.56	7.55	0.0		
	8/16/2021	-	4.38	-	-	13.00	11.56	7.18	0.0		
	8/26/2021	-	3.70	-	-	13.00	11.56	7.86	0.0		
	9/10/2021	-	3.59	-	-	13.00	11.56	7.97	0.0		
	9/22/2021	-	4.55	-	-	13.00	11.56	7.01	0.0		
PL-5R	7/6/2021	-	1.7	1.40	0.30	9.80	6.54	5.39	22.1	LNAPL Sock saturated, replaced sock	
	7/30/2021	-	1.51	1.53	0.02	9.80	6.54	5.03	56.1	LNAPL Sock saturated, replaced sock	
	8/16/2021	-	1.76	1.57	0.19	9.80	6.54	5.13	28.9	LNAPL Sock saturated, replaced sock	
	8/26/2021	-	1.74	NM	-	9.80	6.54	NM	NM	LNAPL Sock saturated, replaced sock	
	9/10/2021	-	1.31	1.25	0.06	9.80	6.54	5.23	13.5	LNAPL Sock saturated, replaced sock	
	9/22/2021	-	1.22	2.24	0.02	9.80	6.54	4.32	9.7	LNAPL Sock saturated, replaced sock	
PL-6RR	7/6/2021	-	0.10	-	-	15.10	6.88	6.78	0.0		
	7/30/2021	-	1.30	-	-	15.10	6.88	5.58	0.0		
	8/16/2021	-	1.50	-	-	15.20	6.88	5.38	0.0		
	8/26/2021	-	0.70	-	-	15.20	6.88	6.18	0.0		
	9/10/2021	-	0.5	-	-	15.20	6.88	6.38	0.0		
	9/22/2021	-	1.03	-	-	15.20	6.88	5.85	0.0		
PL-7	7/6/2021	-	NM	-	-	5.01	10.75	NM	NM	Damaged Well	
	7/30/2021	-	NM	-	-	5.01	10.75	NM	NM	Damaged Well	
	8/16/2021	-	NM	-	-	5.01	10.75	NM	NM	Damaged Well	
	8/26/2021	-	NM	-	-	5.01	10.75	NM	NM	Damaged Well	
	9/10/2021	-	NM	-	-	5.01	10.75	NM	NM	Damaged Well	
	9/22/2021	-	NM	-	-	5.01	10.75	NM	NM	Damaged Well	
PL-8R	7/6/2021	-	4.23	-	-	22.40	9.91	5.68	0.0		
	7/30/2021	-	4.45	-	-	22.40	9.91	5.46	0.0		
	8/16/2021	-	4.28	-	-	21.82	9.91	5.63	0.0		
	8/26/2021	-	3.46	-	-	21.75	9.91	6.45	0.0		
	9/10/2021	-	3.33	-	-	21.75	9.91	6.58	0.0		
	9/22/2021	-	NM	-	-	NM	NM	NM	NM		Construction
PL-9R	7/6/2021	-	1.89	-	-	20.47	9.11	7.22	1.0		
	7/30/2021	-	2.21	-	-	20.45	9.11	6.90	0.0		
	8/16/2021	-	2.10	-	-	20.50	9.11	7.01	0.0		
	8/26/2021	-	2.00	-	-	22.48	9.11	7.11	0.0		
	9/10/2021	-	1.99	-	-	22.48	9.11	7.12	0.0		
	9/22/2021	-	2.01	-	-	22.48	9.11	7.10	0.0		
TF-1	7/6/2021	-	2.70	-	-	12.10	8.60	5.90	0.0	Discontinuous Sheen, Replaced Sock	
	7/30/2021	-	2.73	-	-	12.10	8.60	5.87	0.0	Discontinuous Sheen, Replaced Sock	
	8/16/2021	-	2.72	-	-	12.10	8.60	5.88	1.0	Discontinuous Sheen, Replaced Sock	
	8/26/2021	-	1.19	-	-	12.10	8.60	7.41	94.7	Discontinuous Sheen, Replaced Sock	
	9/10/2021	-	1.01	-	-	12.10	8.60	7.59	88.0	Sock 1/4 absorbed	
	9/22/2021	-	NM	-	-	NM	NM	NM	NM	Construction	
TF-2	7/6/2021	-	1.89	1.88	0.01	11.60	7.50	5.62	2.8	Discontinuous Sheen, Replaced Sock	
	7/30/2021	-	2.25	2.26	0.01	11.60	7.50	5.24	128.1	Discontinuous Sheen, Replaced Sock	
	8/16/2021	-	1.73	1.72	0.01	NM	7.50	5.78	29.7	Discontinuous Sheen, Replaced Sock	
	8/26/2021	-	1.41	1.42	0.01	11.60	7.50	6.09	70.9	Discontinuous Sheen, Replaced Sock	
	9/10/2021	-	1.38	-	-	11.60	7.50	6.12	70.1	Discontinuous Sheen, Replaced Sock	
	9/22/2021	-	NM	-	-	NM	NM	NM	NM	Construction	
TF-3	7/6/2021	-	2.57	-	-	11.97	8.58	6.01	0.0		
	7/30/2021	-	2.71	-	-	11.95	8.58	5.87	0.0		
	8/16/2021	-	2.59	-	-	12.00	8.58	5.99	0.0		
	8/26/2021	-	1.80	-	-	11.95	8.58	6.78	5.5		
	9/10/2021	-	1.72	-	-	11.95	8.58	6.86	0.0		
	9/22/2021	-	NM	-	-	NM	NM	NM	NM		Construction
TM-6R	7/6/2021	-	4.72	-	-	20.61	14.26	9.54	62.1	Sock 1/4 absorbed	
	7/30/2021	-	4.91	-	-	20.70	14.26	9.35	79.1	Sock 1/4 absorbed	
	8/16/2021	-	5.15	-	-	20.55	14.26	9.11	67.1	Sock 1/4 absorbed	
	8/26/2021	-	4.55	-	-	20.70	14.26	9.71	82.4	Sock 1/4 absorbed	
	9/10/2021	-	4.52	-	-	20.70	14.26	9.74	178.2	Sock 1/4 absorbed	
	9/22/2021	-	4.52	-	-	20.70	14.26	9.74	98.4	Sock 1/4 absorbed	
TM-7	7/6/2021	-	5.70	-	-	21.98	14.81	9.11	9.8	Sock 1/4 absorbed	
	7/30/2021	-	5.83	-	-	21.98	14.81	8.98	0.0	Sock 1/4 absorbed	
	8/16/2021	-	6.73	-	-	21.98	14.81	8.08	1.0	Sock 1/4 absorbed	
	8/26/2021	-	NM	-	-	21.98	14.81	NM	NM	Area Underwater	
	9/10/2021	-	6.51	-	-	21.98	14.81	8.30	99.2	Sock 1/4 absorbed	
	9/22/2021	-	6.57	-	-	21.98	14.81	8.24	107.0	Sock 1/4 absorbed	
TR-1R	7/6/2021	-	6.33	-	-	15.00	13.68	7.35	0.0		
	7/30/2021	-	6.53	-	-	15.00	13.68	7.15	0.0		
	8/16/2021	-	6.17	-	-	15.00	13.68	7.51	0.0		
	8/26/2021	-	5.86	-	-	14.98	13.68	7.82	0.0		
	9/10/2021	-	5.67	-	-	14.98	13.68	8.01	0.0		
	9/22/2021	-	5.95	-	-	14.98	13.68	7.73	0.0		
TR-2R	7/6/2021	-	0.18	-	-	20.30	12.47	12.49	0.0	Discontinuous sheen on water surface, sock 1/8 absorbed	
	7/30/2021	-	0.90	-	-	19.74	12.47	11.57	0.0	Slight sheen, replaced sock	
	8/16/2021	-	0.00	-	-	NM	12.47	12.47	2.8	Slight sheen, replaced sock	
	8/26/2021	-	0.10	-	-	19.75	12.47	10.65	0.0		
	9/10/2021	-	NM	-	-	NM	12.47	NM	NM		
	9/22/2021	-	0.00	-	-	19.75	12.47	12.47	250.0		
TR-3RR	7/6/2021	-	2.40	-	-	15.10	9.63	7.23	0.0		
	7/30/2021	-	2.70	-	-	15.00	9.63	6.93	0.0		
	8/16/2021	-	2.20	-	-	14.90	9.63	7.43	0.0		
	8/26/2021	-	2.00	-	-	15.00	9.63	7.63	0.0		
	9/10/2021	-	1.98	-	-	15.00	9.63	7.65	78.4		
	9/22/2021	-	2.22	-	-	15.00	9.63	7.41	65.2		
TR-3D	7/6/2021	-	0.50	-	-	24.90	9.33	8.83	182.0		
	7/30/2021	-	1.75	-	-	24.91	9.33	7.58	29.9		
	8/16/2021	-	1.80	-	-	24.89	9.33	7.53	144.0		
	8/26/2021	-	1.69	-	-	24.90	9.33	7.64	80.4		
	9/10/2021	-	1.6	-	-	24.90	9.33	7.73	102.0		
	9/22/2021	-	1.85	-	-	24.90	9.33	7.48	210.0		
TR-3DD	7/6/2021	-	3.21	-	-	60.00	9.59	6.38	2.3		
	7/30/2021	-	3.30	-	-	59.20	9.59	6.29	0.0		
	8/16/2021	-	3.32	-	-	60.20	9.59	6.27	1.2		
	8/26/2021	-	3.36	-	-	60.20	9.59	6.23	0.0		
	9/10/2021	-	3.54	-	-	60.20	9.59	6.05	0.8		
	9/22/2021	-	3.09	-	-	60.20	9.59	6.50	0.0		
TR-4R	7/6/2021	-	3.50	-	-	13.50	12.48	8.98	110.2		
	7/30/2021	-	NM	-	-	NM	12.48	NM	NM		Underwater
	8/16/2021	-	1.52	-	-	NM	12.48	10.96	NM		Underwater
	8/26/2021	-	NM	-	-	13.61	12.48	7.27	NM		Underwater
	9/10/2021	-	NM	-	-	13.61	12.48	NM	NM		Underwater
	9/22/2021	-	1.5	-	-	13.61	12.48	10.98	560.0		Underwater
TR-4D	7/6/2021	-	5.30	-	-	24.60	12.18	6.88	10.8		
	7/30/2021	-	NM	-	-	NM	12.18	#VALUE!	NM		
	8/16/2021	-	5.17	-	-	24.00	12.18	7.01	40.2		
	8/26/2021	-	NM	-	-	NM	NM	NM	NM		Underwater
	9/10/2021	-	NM	-	-	NM	NM	NM	NM		Underwater
	9/22/2021	-	5.06	-	-	24.00	12.18	7.17	807.0		

Table 1
Hess Corporation Port Reading Terminal
750 Cliff Road, Port Reading, New Jersey
Monthly Groundwater Gauging

Well I.D.	Date	Time	Depth to LNAPL (ft)	Depth to Water (ft)	LNAPL Thickness (ft)	DTB from TOC (ft)	TOC Elevation (ft amsl)	Groundwater Elevation (ft amsl)	PID	Notes
TR-4DD	7/6/2021		-	5.51	-	57.50	12.58	7.07	0.0	Underwater
	7/30/2021		-	NM	-	NM	12.58	#VALUE!	NM	Underwater
	8/16/2021		-	5.17	-	56.70	12.58	7.41	0.0	Underwater
	8/26/2021		-	NM	-	NM	NM	NM	NM	Underwater
	9/10/2021		-	NM	-	NM	NM	NM	NM	Underwater
TR-5	9/22/2021		-	5.17	-	57.00	12.58	7.41	97.1	
	7/6/2021		-	3.37	-	10.64	11.99	8.62	19.8	
	7/30/2021		-	3.60	-	10.65	11.99	8.39	29.2	
	8/16/2021		-	3.49	-	10.68	11.99	8.50	14.9	
	8/26/2021		-	3.90	-	10.68	11.99	8.09	229.0	
TR-5D	9/10/2021		-	3.79	-	10.68	11.99	8.20	275.0	
	9/22/2021		-	3.8	-	10.68	11.99	8.19	687.0	
	7/6/2021		-	5.10	-	23.40	12.01	6.91	0.0	
	7/30/2021		-	5.20	-	23.31	12.01	6.81	0.0	
	8/16/2021		-	4.79	-	23.25	12.01	7.22	0.0	
TR-5DD	8/26/2021		-	4.70	-	23.30	12.01	7.31	0.0	
	9/10/2021		-	4.75	-	23.30	12.01	7.26	0.0	
	9/22/2021		-	4.77	-	23.30	12.01	7.24	0.0	
	7/6/2021		-	4.87	-	60.00	11.64	6.77	0.0	
	7/30/2021		-	4.93	-	59.30	11.64	6.71	0.0	
TR-6	8/16/2021		-	4.79	-	59.30	11.64	6.85	0.0	
	8/26/2021		-	4.57	-	60.04	11.64	7.07	0.0	
	9/10/2021		-	4.5	-	60.04	11.64	7.14	0.0	
	9/22/2021		-	4.52	-	60.04	11.64	7.12	0.0	
	7/6/2021		-	2.75	-	12.60	10.78	8.03	0.0	
TR-6D	7/30/2021		-	3.01	-	12.60	10.78	7.77	0.0	
	8/16/2021		-	3.45	-	13.00	10.78	7.33	0.0	
	8/26/2021		-	3.25	-	12.60	10.78	7.53	0.0	
	9/10/2021		-	3.15	-	12.60	10.78	7.63	0.0	
	9/22/2021		-	3.49	-	12.60	10.78	7.29	0.0	
TR-6D	7/6/2021		-	4.20	-	28.20	10.81	6.61	0.0	
	7/30/2021		-	3.79	-	28.20	10.81	7.02	0.0	
	8/16/2021		-	4.10	-	29.30	10.81	6.71	0.0	
	8/26/2021		-	3.75	-	28.20	10.81	7.06	0.0	
	9/10/2021		-	3.62	-	28.20	10.81	7.19	0.0	
TR-Sump-1	9/22/2021		-	3.9	-	28.20	10.81	6.91	0.0	
	7/6/2021		-	5.34	-	7.30	12.62	7.28	0.0	
	7/30/2021		-	5.30	-	7.30	12.62	7.32	0.0	
	8/16/2021		-	6.33	-	7.30	12.62	6.29	0.0	
	8/26/2021		-	5.26	-	7.30	12.62	7.36	0.0	
TR-Sump-2	9/10/2021		-	5.27	-	7.30	12.62	7.35	0.0	
	9/22/2021		-	5.36	-	7.30	12.62	7.26	0.0	
	7/6/2021		-	5.04	-	7.20	12.35	7.31	0.0	
	7/30/2021		-	5.12	-	7.20	12.35	7.23	0.0	
	8/16/2021		-	4.96	-	7.20	12.35	7.39	0.0	
Interceptor Trench	8/26/2021		-	4.97	-	7.20	12.35	7.38	0.0	
	9/10/2021		-	4.97	-	7.20	12.35	7.38	0.0	
	9/22/2021		-	5.05	-	7.20	12.35	7.3	0.0	
	7/6/2021		2.5	-	-	5.00	-	-	NM	
	7/30/2021		2.5	-	-	5.00	-	-	NM	
DB-SW	8/16/2021		-	1.90	-	5.00	-	-	NM	Intermittent sheen on top of water. No measurable product.
	8/26/2021		-	0.75	-	5.00	-	-	NM	Intermittent sheen on top of water. No measurable product.
	9/10/2021		-	0.50	-	5.00	-	-	NM	Intermittent sheen on top of water. No measurable product.
	9/22/2021		-	0.54	-	5.00	-	-	NM	Intermittent sheen on top of water. No measurable product.
	7/6/2021		-	7.00	-	-	1.08	5.92	NM	
LN-SW	7/30/2021		-	7.25	-	-	1.08	6.17	NM	
	8/16/2021		-	7.00	-	-	1.08	5.92	NM	
	8/26/2021		-	6.00	-	-	1.08	4.92	NM	
	9/10/2021		-	6.75	-	-	1.08	5.67	NM	
	9/22/2021		-	7.5	-	-	1.08	6.42	NM	
L1-SW	7/6/2021		-	NM	-	-	-0.31	NA	NM	Could not read
	7/30/2021		-	1.30	-	-	-0.31	1.61	NM	
	8/16/2021		-	3.00	-	-	-0.31	3.31	NM	
	8/26/2021		-	3.00	-	-	-0.31	3.31	NM	
	9/10/2021		-	3.00	-	-	-0.31	3.31	NM	
SC-SG-1	9/22/2021		-	3	-	-	-0.31	3.31	NM	
	7/6/2021		-	NM	-	-	-0.20	-	NM	Could not read
	7/30/2021		-	1.30	-	-	-0.20	-	NM	Could not read
	8/16/2021		-	NM	-	-	-0.20	-	NM	Could not read
	8/26/2021		-	NM	-	-	-0.20	-	NM	Could not read
SC-SG-1A	9/10/2021		-	1.50	-	-	-0.20	-	NM	Could not read
	9/22/2021		-	NM	-	-	-0.20	-	NM	Could not read
	7/6/2021		-	-	-	-	-0.98	-	NM	Stream Gauge under water and not visible
	7/30/2021		-	-	-	-	-0.98	-	NM	Stream Gauge under water and not visible
	8/16/2021		-	-	-	-	-0.98	-	NM	Stream Gauge under water and not visible
SC-SG-2	8/26/2021		-	-	-	-	-0.98	-	NM	Stream Gauge under water and not visible
	9/10/2021		-	-	-	-	-0.98	-	NM	Stream Gauge not visible
	9/22/2021		-	-	-	-	-	-	NM	Stream Gauge under water and not visible
	7/6/2021		-	-	-	-	-1.10	-	NM	Tide too low for reading
	7/30/2021		-	-	-	-	-	-	NM	Tide too low for reading
FA-1	8/16/2021		-	-	-	-	-1.10	-	NM	Tide too low for reading
	8/26/2021		-	-	-	-	-1.10	-	NM	Tide too low for reading
	9/10/2021		-	-	-	-	-1.10	-	NM	Stream Gauge not visible
	9/22/2021		-	-	-	-	-1.10	-	NM	Stream Gauge not visible
	7/6/2021		-	-	-	-	-1.64	-	NM	Tide too low for reading
FA-2	7/30/2021		-	-	-	-	-1.64	-	NM	Tide too low for reading
	8/16/2021		-	-	-	-	-1.64	-	NM	Tide too low for reading
	8/26/2021		-	-	-	-	-1.64	-	NM	Stream Gauge not visible
	9/10/2021		-	-	-	-	-1.64	-	NM	Stream Gauge not visible
	9/22/2021		-	-	-	-	-1.64	-	NM	Stream Gauge not visible
FA-3	7/6/2021		-	3.35	-	12.25	9.67	6.32	0.0	
	7/30/2021		-	3.42	-	12.05	9.67	6.25	0.0	
	8/16/2021		-	3.22	-	12.00	9.67	6.45	0.0	
	8/26/2021		-	2.64	-	12.10	9.67	7.03	0.0	
	9/10/2021		-	2.35	-	12.10	9.67	7.32	0.0	
FA-4	9/22/2021		-	2.48	-	12.10	9.67	7.19	0.0	
	7/6/2021		-	4.13	-	13.60	10.39	6.26	0.0	
	7/30/2021		-	4.10	-	13.40	10.39	6.29	0.0	
	8/16/2021		-	4.02	-	13.40	10.39	6.37	0.0	
	8/26/2021		-	3.38	-	13.41	10.39	7.01	0.0	
FA-5	9/10/2021		-	3.24	-	13.41	10.39	7.15	0.0	
	9/22/2021		-	3.44	-	13.41	10.39	6.95	0.0	
	7/6/2021		-	8.91	-	14.60	10.84	1.93	0.0	Product-like substance present, unmeasurable
	7/30/2021		-	9.01	-	14.50	10.84	1.83	0.0	Product-like substance present, unmeasurable
	8/16/2021		-	8.77	-	14.50	10.84	2.07	1.1	Product-like substance present, unmeasurable, Replaced Sock
FA-6	8/26/2021		-	8.39	-	14.50	10.84	2.45	0.7	Sheen
	9/10/2021		-	7.88	-	14.50	10.84	2.96	1.5	Sheen, Sock 1.4 saturated
	9/22/2021		-	8.43	-	14.50	10.84	2.41	1.0	Sock 1.4 saturated, Replaced Sock
	7/6/2021		-	9.01	-	14.50	10.98	1.97	0.0	
	7/30/2021		-	9.30	-	14.50	10.98	1.68	0.0	
FA-7	8/16/2021		-	8.94	-	14.40	10.98	2.04	0.0	
	8/26/2021		-	8.45	-	14.97	10.98	2.53	0.0	
	9/10/2021		-	8.05	-	14.90	10.98	2.93	0.0	
	9/22/2021		-	8.6	-	14.90	10.98	2.38	0.0	
	7/6/2021		8.1	8.08	0.02	14.50	10.22	2.14	0.0	Discontinuous Sheen, replaced sock
FA-8	7/30/2021		8.14	8.17	0.03	14.50	10.22	2.05	0.0	Discontinuous Sheen, replaced sock
	8/16/2021		7.47	7.08	0.39	14.50	10.22	2.75	0.0	Discontinuous Sheen, replaced sock
	8/26/2021		6.96	6.98	0.02	14.50	10.22	3.24	0.0	Sock 1/4 saturated, Replaced sock
	9/10/2021		7.00	7.00	0.00	14.50	10.22	3.22	0.0	Sock saturated, Replaced sock
	9/22/2021		7.29	7.3	0.01	14.50	10.22	2.93	0.0	Sock saturated, Replaced sock
FA-9	7/6/2021		-	9.84	-	18.20	12.13	2.29	0.0	Orange silt throughout water column
	7/30/2021		-	9.90	-	18.20	12.13	2.23	0.0	
	8/16/2021		-	10.31	-	18.10	12.13	1.82	0.0	Orange silt throughout water column
	8/26/2021		-	5.37	-	18.10	12.13	6.76	0.0	
	9/10/2021		-	8.84	-	18.10	12.13	3.29	0.0	
FA-10	9/22/2021		-	9.40	-	18.10	12.13	2.73	0.0	
	7/6/2021		-	9.20	-	18.15	10.14	0.94	0.0	
	7/30/2021		-	9.34	-	18.00	10.14	0.80	0.0	
	8/16/2021		-	9.22	-	18.00	10.14	0.92	0.0	
	8/26/2021		-	8.42	-	18.15	10.14	1.72	0.0	
FA-11	9/10/2021		-	8.43	-	18.15	10.14	1.71	0.0	
	9/22/2021		-	8.67	-	18.15	10.14	1.47	0.0	

Table 2
Quarterly Landfarms Monitoring Well Gauging Data
Hess Corporation - Former Port Reading Complex
750 Cliff Road
Port Reading, Middlesex County, New Jersey

Groundwater Gauging Data						
Well I.D.	Date	Depth to Water	DTB from TOC	TOC Elevation	Water Elevation	PID
LN-SW	7/12/2021	3.00	NA	-0.31	3.31	NA
LN-1	7/12/2021	4.04	14.86	10.37	6.33	0.0
LN-2	7/12/2021	5.30	12.00	9.65	4.35	0.0
LN-3	7/12/2021	4.89	13.12	8.92	4.03	0.0
LN-4	7/12/2021	6.97	15.20	10.69	3.72	0.0
LN-5	7/12/2021	6.06	17.55	10.57	4.51	0.0
LN-6	7/12/2021	7.96	17.80	12.15	4.19	0.0
LN-7	7/12/2021	8.33	17.90	13.30	4.97	0.0
PER-4	7/12/2021	NM	16.45	10.30	NM	NM
LPG-2	7/12/2021	NM	9.60	7.05	NM	NM
DB-SW	7/12/2021	7.00	NA	-0.11	7.11	NA
LS-1R	7/12/2021	2.52	15.75	12.25	9.73	0.0
LS-2	7/12/2021	1.85	12.00	9.75	7.90	0.0
LS-3	7/12/2021	0.60	12.60	8.40	7.80	0.4
LS-4	7/12/2021	1.22	13.13	9.28	8.06	3.4
TM-6R	7/12/2021	4.06	19.80	14.26	10.20	7.3
PL-1RR	7/12/2021	0.40	14.70	7.36	6.96	7.8
PL-3R	7/12/2021	2.88	18.80	10.16	7.28	0.0
PL-6RR	7/12/2021	0.60	15.00	6.88	6.28	0.0
PL-9R	7/12/2021	1.61	19.90	9.11	7.50	0.0
L1-SW	7/12/2021	NM	NA	-0.20	NM	NA
L1-1	7/12/2021	NM	NM	9.91	NM	NM
L1-2	7/12/2021	5.68	14.90	9.05	3.37	0.0
L1-3	7/12/2021	6.05	10.90	9.33	3.28	0.0
L1-4	7/12/2021	6.98	10.95	10.85	3.87	0.0
BG-2	7/12/2021	1.86	9.20	6.96	5.10	0.0
BG-3	7/12/2021	2.79	10.70	10.31	7.52	0.0
SP-1	7/12/2021	NM	NM	8.95	NM	NM
SP-2	7/12/2021	NM	NM	10.18	NM	NM
SP-3	7/12/2021	3.33	16.90	9.33	6.00	0.0
*Anomalous measurement/not used in contour figure LNAPL - Light non Aqueous Phase Liquids NA - Not Applicable DTB - Depth to Bottom All Measurements are in feet TOC - Top of Casing NM - Not Measured						

Table 3
Monitoring Well Gauging Table - Historic LNAPL Hess Corporation - Former Port Reading Complex 750 Cliff Road
Port Reading, Middlesex County, New Jersey
Third Quarter

Third Quarter	2015						2016					
	July	RIM Actions	August	RIM Actions	September	RIM Actions	July	RIM Actions	August	RIM Actions	September	RIM Actions
FA-3	NI	NA	NI	NA	NI	NA	NI	NA	NI	NA	NI	NA
FA-5	NI	NA	NI	NA	NI	NA	NI	NA	NI	NA	NI	NA
PL-1RR	0.01	Sock deployed	0.01	Sock deployed	0.17	Sock Deployed	Sheen	NA	Sheen	NA	Sheen	NA
PL-2	0.02	Sock deployed	0.02	Sock deployed	0.04	Sock Deployed	0.00	NA	0.00	NA	0.00	NA
PL-5/PL-5R	NM	NA	NM	NA	NM	NA	NA	NA	NA	NA	NA	NA
PL-8R	0.00	NA	0.00	NA	0.00	NA	NA	NA	NA	NA	NA	NA
PL-9R	Sheen	NA	Sheen	NA	Sheen	NA	0.00	NA	0.00	NA	0.00	NA
TF-1	NM	NA	NM	NA	0.00	NA	0.00	NA	0.00	NA	0.00	NA
TF-2	NM	NA	NM	NA	NM	NA	0.50	Sock deployed	0.38	Sock deployed	0.28	Sock deployed
TF-3	NM	NA	0.00	NA	0.00	NA	Sheen	NA	0.00	NA	0.00	NA
TM-6R	NM	NA	NM	NA	NM	NA	0.00	NA	0.00	NA	0.00	NA
TM-7	0.05	Sock deployed	0.07	Sock deployed	0.01	Sock Deployed	0.05	Sock deployed	Sheen	NA	0.00	NA
TR-2R	0.01	Sock deployed	0.01	Sock deployed	0.02	Sock Deployed	0.03	Sock deployed	<0.1	Sock deployed	0.00	NA
TR-4R	0.00	NA	0.00	NA	0.00	NA	Sheen	NA	NM	NA	0.00	NA
TR-4DD	0.00	NA	0.00	NA	0.00	NA	0.00	NA	0.00	NA	0.00	NA
TR-6	0.01	Sock deployed	0.00	NA	0.00	NA	0.00	NA	0.00	NA	0.00	NA
TR-6D	0.02	Sock deployed	0.00	NA	0.00	NA	0.00	NA	0.00	NA	0.00	NA
Interceptor Trench	NM	NA	NM	NA	NM	NA	NA	NA	NA	NA	NA	280 Gallons Removed

Third Quarter	2017						2018					
	July	RIM Actions	August	RIM Actions	September	RIM Actions	July	RIM Actions	August	RIM Actions	September	RIM Actions
FA-3	NI	NA	NI	NA	NI	NA	NI	NA	NI	NA	NI	NA
FA-5	NI	NA	NI	NA	NI	NA	NI	NA	NI	NA	NI	NA
PL-1RR	0.01	NA	Sheen	NA	Sheen	NA	0.00	NA	0.00	NA	0.00	NA
PL-2	Sheen	Socky Deployed	0.00	NA	0.00	NA	0.00	NA	0.00	NA	0.00	NA
PL-5/PL-5R	NM	NA	Sheen	NA	Sheen	NA	1.50	Socky Deployed	1.35	Socky Deployed	1.75	Socky Deployed
PL-8R	NM	NA	0.00	NA	0.00	NA	0.01	Socky Deployed	0.00	NA	0.00	NA
PL-9R	0.00	NA	0.00	0.00	NA	0.00	0.00	NA	0.00	NA	0.00	NA
TF-1	0.00	NA	0.00	NA	0.00	NA	0.00	NA	0.00	NA	0.00	NA
TF-2	0.01	Socky Deployed	0.00	NA	0.01	Sock Deployed	0.00	NA	Sheen	NA	0.00	NA
TF-3	0.00	NA	0.00	NA	0.00	NA	0.00	NA	0.00	NA	0.00	NA
TM-6R	0.00	NA	0.00	NA	0.00	NA	0.00	NA	Sheen	NA	Sheen	NA
TM-7	Sheen	NA	0.00	NA	0.00	NA	0.00	NA	Sheen	NA	Sheen	NA
TR-2R	0.00	NA	0.00	NA	0.00	NA	0.00	NA	0.00	NA	0.00	NA
TR-4R	0.00	NA	0.00	NA	0.00	NA	0.00	NA	0.00	NA	0.00	NA
TR-4DD	0.00	NA	0.00	NA	0.00	NA	0.00	NA	0.00	NA	0.00	NA
TR-6	0.00	NA	0.00	NA	0.00	NA	0.00	NA	0.00	NA	0.00	NA
TR-6D	0.00	NA	0.00	NA	0.00	NA	0.00	NA	0.00	NA	0.00	NA
Interceptor Trench	0.5	NA	Indeterminable	NA	Indeterminable	NA	NA	NA	NA	857 Gallons Removed	NA	2018 Gallons Removed

Third Quarter	2019						2020					
	July	RIM Actions	August	RIM Actions	September	RIM Actions	July	RIM Actions	August	RIM Actions	September	RIM Actions
FA-3	NI	NA	NI	NA	NI	NI	0.00	NA	0.00	NA	0.00	NA
FA-5	NI	NA	NI	NA	NI	NI	Sheen	Sock deployed	Sheen	Sock deployed	Sheen	Sock deployed
PL-1RR	indeterminable	Sock deployed	NA	NA	Globules	Sock deployed	Sheen	Sock deployed	Sheen	Sock deployed	Sheen	Sock deployed
PL-2	0.00	NA	NA	NA	0.00	NA	0.00	NA	0.00	NA	0.00	NA
PL-5/PL-5R	indeterminable	Sock deployed	NA	NA	NM	NA	indeterminable	Sock deployed	0.70	Sock deployed	0.25	Sock deployed
PL-8R	0.00	NA	NA	NA	0.00	NA	0.00	NA	0.00	NA	0.00	NA
PL-9R	0.00	NA	0.00	NA	0.00	NA	0.00	NA	0.00	NA	0.00	NA
TF-1	0.00	NA	NA	NA	0.00	NA	Sheen	Sock deployed	Sheen	Sock deployed	Sheen	Sock deployed
TF-2	Globules	Sock deployed	NA	NA	Globules	Sock deployed	Sheen	Sock deployed	Sheen	Sock deployed	Sheen	Sock deployed
TF-3	0.00	NA	NA	NA	0.00	NA	0.00	NA	0.00	NA	0.00	NA
TM-6R	0.00	NA	NA	NA	0.00	NA	0.00	NA	0.00	NA	0.00	NA
TM-7	Globules	Sock deployed	NA	NA	0.00	NA	Sheen	NA	Sheen	NA	Sheen	NA
TR-2R	0.00	NA	NA	NA	0.00	NA	Sheen	Sock deployed	Sheen	NA	Sheen	NA
TR-4R	0.00	NA	NA	NA	0.00	NA	0.00	NA	0.00	NA	0.00	NA
TR-4DD	0.00	NA	0.00	NA	0.00	NA	Sheen	NA	Sheen	NA	Sheen	NA
TR-6	0.00	NA	NA	NA	0.00	NA	0.00	NA	0.00	NA	0.00	NA
TR-6D	0.00	NA	NA	NA	0.00	NA	0.00	NA	0.00	NA	0.00	NA
Interceptor Trench	NM	95 Gallons Removed from PL-5R and Interceptor Trench	NM	NA	NM	157 Gallons Removed from Interceptor Trench	0.5	202 Gallons Removed from Interceptor Trench and PL-5R	1.6	NA	0.8	229 Gallons Removed from Interceptor Trench and PL-5R

Third Quarter	2021					
	July	RIM Actions	August	RIM Actions	September	RIM Actions
FA-3	Sheen/Sheen	Sock deployed/Sock deployed	Sheen/Sheen	Sock deployed/Sock deployed	Sheen/Sheen	Sock deployed/Sock deployed
FA-5	Sheen/Sheen	Sock deployed/Sock deployed	Sheen/Sheen	Sock deployed/Sock deployed	Sheen/Sheen	Sock deployed/Sock deployed
PL-1RR	Sheen/Sheen	Sock deployed/Sock deployed	Sheen/Sheen	Sock deployed/Sock deployed	Sheen/Sheen	Sock deployed/Sock deployed
PL-2	0.00/0.00	NA/NA	0.00/0.00	NA/NA	0.00/0.00	NA/NA
PL-5/PL-5R	0.30/0.02	Sock deployed/Sock deployed	0.19/0.28	Sock deployed/Sock deployed	0.25/0.02	Sock deployed/Sock deployed
PL-8R	0.00/0.00	NA/NA	0.00	0.00/0.00	0.00/NM	NA/NA
PL-9R	0.00/0.00	NA/NA	0.00	0.00/0.00	0.00/0.00	NA/NA
TF-1	Sheen/Sheen	Sock deployed/Sock deployed	Sheen/Sheen	Sock deployed/Sock deployed	Sheen/NM	Sock deployed/NA
TF-2	Sheen/Sheen	Sock deployed/Sock deployed	Sheen/Sheen	Sock deployed/Sock deployed	Sheen/NM	Sock deployed/NA
TF-3	0.00/0.00	NA/NA	0.00/0.00	NA/NA	0.00/NM	NA/NA
TM-6R	0.00/0.00	NA/NA	0.00/0.00	NA/NA	0.00/0.00	Sock deployed/NA
TM-7	0.00/0.00	NA/NA	0.00/NM	0.00/0.00	Sheen/Globules	NA/NA
TR-2R	Sheen/Sheen	NA/Sock deployed	Sheen	NA	0.00/0.00	NA/NA
TR-4R	0.00/0.00	NA/NA	0.00/NM	NA/NA	0.00/0.00	NA/NA
TR-4DD	0.00/0.00	NA/NA	0.00/NM	NA/NA	Sheen/0.00	NA/NA
TR-6	0.00/0.00	NA/NA	0.00/NM	NA/NA	0.00/0.00	NA/NA
TR-6D	0.00/0.00	NA/NA	0.00/NM	NA/NA	0.00/0.00	NA/NA
Interceptor Trench	NM	349 Gallons Removed from PL-5R and Interceptor Trench	NM/NM	484 Gallons Removed from Interceptor Trench and PL-5R	NM/NM	NA/NA

Appendix A

Disposal Manifests

Route: <u>Best Way</u>		Vehicle No. <u> </u>		SCAC <u> </u>		Emergency Response Phone Number <u> </u>	
No. Shipping Units	+HM	Kind of Packaging	Description of Articles	Commodities requiring special or additional care or attention in handling or stowing must be so marked and packaged as to ensure safe transportation with ordinary care. See Section 2(e) of National Motor Freight Classification, Item 360.		Weight (Subject to Correction)*	Rate or Class
		Special Marks and Exceptions					CHARGES
<u>349-6</u>		<u>PETROLEUM CONTRACTOR (WATER)</u>		<u>(P.C.W.)</u>			
		<u>(ID-72)</u>					
		<u>NOV 005 / NOV RCRA-</u>					
		<u>NJDEP-0033099</u>					

*If the shipment moves between two ports by a carrier by water, the carrier is not liable of lading state whether weight is consignor's or shipper's weight.

NET WT. C.O.D. NO. ADDRESS

C.O.D. SEE: UNPAID ☐ COLLECT ☐ \$

TOTAL CHARGES \$ 1458

Note: Where the rate is dependent on value, shippers are required to state specifically in writing the agreed or declared value of the property.

The agreed or declared value of the property is hereby specifically stated by the shipper to be not exceeding

\$ per

Subject to Section 7 of the conditions, if this shipment is to be delivered to the consignee without recourse on the consignor, the consignor shall sign the following statement.

The carrier shall not make delivery of this shipment without payment of freight and all other charges.

(Signature of Consignor)

FREIGHT CHARGES

Check Appropriate Box:

- ☐ Freight prepaid
☐ Collect

RECEIVED, subject to the classifications and lawfully filed tariffs in effect on the date of the issue of this Bill of Lading, the property described above in apparent good order, except as noted (contents and condition of contents of packages unknown), marked, consigned, and destined as indicated above which said carrier (the word carrier being understood throughout this contract as meaning any person or corporation in possession of the property under the contract) agrees to carry to its usual place of delivery at said destination, if on its route, otherwise to deliver to another carrier on the route to said destination. It is mutually agreed as to each carrier of all or any of, said property over all or any portion of said route to destination and as to each party at any time interested in all or any of said property, that every service to be performed hereunder shall be subject to all the terms and conditions of the Uniform Domestic Straight Bill of Lading set forth (1) in Uniform Freight Classifications in effect on the date hereof, if this is a rail or a rail-water shipment or (2) in the applicable motor carrier classification or tariff, if this is a motor carrier shipment. Shipper hereby certifies that he is familiar with all the terms and conditions of the said bill of lading, set forth in the classification or tariff, which governs the transportation of this shipment, and the said terms and conditions are hereby agreed to by the shipper and accepted for himself and his assigns.

Mark with "RD" if appropriate to designate Hazardous Materials as defined in the U.S. Department of Transportation Regulations governing the transportation of hazardous materials. The use of this column is an optional method for identifying hazardous materials on Bills of Lading per 172.201(a)(1) (iii) of Title 49 Code of Federal Regulations. Also when shipping hazardous materials, the shipper's certification statement prescribed in section 172.204(d) of the Federal Regulations, as indicated on the Bill of Lading does apply, unless a specific exception from this requirement is provided in the Regulation for a particular material.

The format and content of hazardous item list is the responsibility of individual company interpretation of requirements as described in 49 Code of Federal Regulations 172, Subpart C-Shipping Papers. Such description consists of the following per Sections 172.201 (Hazardous Material Table) and Sections 172.202 and 172.203: Proper shipping name, hazardous class, UN identification number, packing group, and subsidiary class(es).

Note: Liability limitation for loss or damage in this shipment may be applicable. See 49 United States Code, Sections 14706(c) (1)(A) and (B).

SHIPPER

PER

CARRIER

PER

2

This is to certify that the above named materials are properly classified, packaged, marked, and labeled, and are in proper condition for transportation according to the applicable regulations of the U.S. Department of Transportation.

Carrier acknowledges receipt of packages and any required placards. Carrier certifies emergency response information was made available and/or carrier has the U.S. Department of Transportation emergency response guidebook or equivalent documentation in the vehicle. Property described above is received in good order, except as noted.

STRAIGHT BILL OF LADING - SHORT FORM

NOTICE: Shippers of hazardous materials must enter 24-hour emergency response telephone number under "Emergency Response Phone Number."

Shipping Order

Date

09/521

Bill of Lading No.

09/521-17552

Shipper No.

Carrier No.

(Name of Carrier)

TO:

Consignee

Street

Destination

Route:

No. Shipping Units

+HM

Kind of Packaging, Description of Articles
Special Marks and Exceptions

Commodities requiring special or additional care or attention in handling or stowing must be so marked and packaged as to ensure safe transportation with ordinary care. See Section 2(e) of National Motor Freight Classification, Item 360.

Weight
(Subject to Correction)*

Rate or Class

CHARGES

GALFLO

307

PETROLEUM CONTAINER WATER (P.C.W.)

ID-72

NON DOP / NON RCD

NIDOP-0033099

*If the shipment moves between two ports by a carrier by water, the law requires that the bill of lading state whether weight is "carrier's or shipper's weight".

REMIT
C.O.D. TO:
ADDRESS

C.O.D.

Amt. \$

C.O.D. FEE:
PREPAID ☐
COLLECT ☐ \$

TOTAL

CHARGES: \$

Note-Where the rate is dependent on value, shippers are required to state specifically in writing the agreed or declared value of the property.

The agreed or declared value of the property is hereby specifically stated by the shipper to be not exceeding

\$ _____ per _____

Subject to Section 7 of the conditions, if this shipment is to be delivered to the consignee without recourse on the consignor, the consignor shall sign the following statement.

The carrier shall not make delivery of this shipment without payment of freight and all other charges.

(Signature of Consignor)

FREIGHT CHARGES

Check Appropriate Box:

☐ Freight prepaid☐ Collect

RECEIVED, subject to the classifications and lawfully filed tariffs in effect on the date of the issue of this Bill of Lading, the property described above in apparent good order, except as noted (contents and condition of contents of packages unknown), marked, consigned, and destined as indicated above which said carrier (the word carrier being understood throughout this contract as meaning any person or corporation in possession of the property under the contract) agrees to carry to its usual place of delivery at said destination, if on its route, otherwise to deliver to another carrier on the route to said destination. It is mutually agreed as to each carrier of all or any of, said property over all or any portion of said route to destination and as to each party at any time interested in all or any of said property, that every service to be performed hereunder shall be subject to all the terms and conditions of the Uniform Domestic Straight Bill of Lading set forth (1) in Uniform Freight Classifications in effect on the date hereof, if this is a rail or a rail-water shipment or (2) in the applicable motor carrier classification or tariff, if this is a motor carrier shipment. Shipper hereby certifies that he is familiar with all the terms and conditions of the said bill of lading, set forth in the classification or tariff which governs the transportation of this shipment, and the said terms and conditions are hereby agreed to by the shipper and accepted for himself and his assigns.

Mark with "RG" if appropriate to designate Hazardous Materials as defined in the U.S. Department of Transportation Regulations governing the transportation of hazardous materials. The use of this column is an optional method for identifying hazardous materials on Bills of Lading per 172.201(a)(1) (iii) of Title 49 Code of Federal Regulations. Also when shipping hazardous materials, the shipper's certification statement, prescribed in section 172.204(a) of the Federal Regulations, as indicated on the Bill of Lading does apply, unless a specific exemption from the requirement is provided in the Regulation for a particular material.

The format and content of hazardous item list is the responsibility of individual company interpretation of requirements as described in 49 Code of Federal Regulations 172, Subpart C-Shipping Papers. Such description consists of the following per Sections 172.201 (Hazardous Material Table) and Sections 172.202 and 172.203: Proper shipping name, hazardous class, UN-identification number, packing group, and subsidiary class(es).

Note: Liability limitation for loss or damage in this shipment may be applicable. See 49 United States Code, Sections 14706(c)(1)(A) and (B).

SHIPPER

PER

CARRIER

PER

2

This is to certify that the above named materials are properly classified, packaged, marked, and labeled, and are in proper condition for transportation according to the applicable regulations of the U.S. Department of Transportation.

Carrier acknowledges receipt of packages and any required placards. Carrier certifies emergency response information was made available and/or carrier has the U.S. Department of Transportation emergency response guidebook or equivalent documentation in the vehicle. Property described above is received in good order, except as noted.

Appendix B

NJDEP Comment Letter



March 9, 2021

Via Email/Sharefile

Mr. Andrew Park & Mr. Sameh Abdellatif
Hazardous Waste Programs Branch
US Environmental Protection Agency Region 2
290 Broadway, 22nd Floor
New York, New York 10007-1866

**Re: Second Quarter and Third Quarter 2020 Progress Report Response to
Comments (November 13, 2020 Comments)
Hess Corporation Former Port Reading Complex (Site)
750 Cliff Road
Woodbridge, Middlesex County, New Jersey
NJDEP PI# 006148
ISRA Case No. E20130449
EPA ID No. NJD045445483**

Dear Mr. Park:

Earth Systems, Inc. (Earth Systems) has prepared this letter on behalf of Hess Corporation (Hess) regarding the draft comments provided by the New Jersey Department of Environmental Protection (NJDEP) and Environmental Protection Agency (EPA) relating to the Second Quarter and Third Quarter 2020 Progress Reports submitted on July 31, 2020 and October 31, 2020. Please note that a meeting was held on January 12, 2021 to discuss this comment letter and meeting notes were uploaded to the portal on January 26, 2021. All changes noted below will be instituted starting with the Second Quarter Progress Report (2021).

NJDEP Comments & Earth Systems/Hess Responses

NJDEP Comment 1: Future quarterly reports should only acknowledge any sampling and data collection completed and the method used. No new data should be included in the progress reports as these are used to keep the case team apprised of ongoing events. Include any new data from sampling events in the semi- annual groundwater reports only. This eliminates duplicate reviews of the same data and will speed up the review process.

Earth Systems/Hess Response 1: All future Quarterly Progress Reports will only note that groundwater sampling has occurred. Quarterly groundwater sampling data will be included in the Semi-Annual Reports only.

NJDEP Comment 2: Introduction and Summary Table:

- Include AOC 103 in future “Summary of Actions” table based on LNAPL at FA-5 and sock installation.

Earth Systems/Hess Response 2: As specified, Area of Concern (AOC) 103 has been included in the “Summary of Actions” table for future quarterly reports.

NJDEP Comment 3: ISRA and Regulatory Requirements Update:

- Comments were provided on the November 2015 SIR (BGWPA review memo September 27, 2016 and attachments: 1. 2015 CID and PA/SI AOC List Inconsistencies, 2. Specific AOC Comments, 3. Aerial Photos for AOC 103) and December 20, 2017 SIR response to comments (BGWPA review memo March 27, 2018). Confirm that the NJDEP SIR comment letter dated August 10, 2017 referenced at the beginning of this section included the three attachments. Comments from all memos and attachments pertaining to the SIR will need to be addressed with the RIWs being developed.

Earth Systems/Hess Response 3: The comment letters referenced in the *ISRA and Regulatory Requirements Update* section include all comment letters specified above. Going forward, all comment letters will be listed.

NJDEP Comment 4: ISRA and Regulatory Requirements Update:

- The AOCs identified in the table as priorities (AOC 10 & Day Tank Field, AOC 11a, AOC 12, AOC 19, AOC 103) are not the only priorities based on identification of free/residual LNAPL, high TW and/or soil VOC/SVOC concentrations, proximity to site perimeter and/or receptors (surface water and/or ecological receptor, vapor intrusion receptor). Please see BGWPA September 2016 SIR comments (“Areas of High/Immediate Concern”). All priority AOCs should be listed.
- 2nd Quarter Progress Report: AOC 10 and Day Tank Field- Include the AOC identifier for Day Tank Field: AOC 57.
- 3rd Quarter Progress Report: AOC 57 Day Tank Field is no longer referenced as under investigation with AOC 10. Confirm AOC 10 and AOC 57 areas together constitute an RMU and list the AOCs and historic spills in the RMU that will be included in the investigation.
- 2nd and 3rd Quarter Progress Report: AOC 11a investigation was initiated and is ongoing. AOC 11a includes the AOC 77 AST area and surrounding AOCs. Please see BGWPA September 2016 SIR comment memo and specific comments attachment concerning AOC 11a and proximal AOCs. Identify what parts of the ground water RIW have been done and when, what parts remain pending and provide schedule for implementation.

Earth Systems/Hess Response 4:

- The list of priority AOCs will be updated as per this comment, starting with the

next quarterly report, which is the 2021 Second Quarter Progress Report (2021). As per the comments, the following AOCs will be listed as high priority AOCs:

- AOC 1 – North Landfarm
 - AOC 2 – South Landfarm
 - AOC 3 – No. 1 Landfarm
 - AOC 10 – Truck Loading Rack
 - AOC 8 – Waste Drum Storage Area
 - AOC 29 – Mixing Basin
 - AOC 43 – Truck Unloading Area
 - AOC 57 – Day Tankfield
 - AOC 110 – 110 Oil/Water Separator
 - AOC 111 – Chemical Storage Area
 - AOC 82 – Former Incinerator Building
 - AOC 86 – Truck Rack Vapor Recovery Unit
 - AOC 109 – Truck Rack Sump
 - AOC 11a – Administration Building
 - AOC 78 - Administration Building Drainage Channel
 - AOC 12 – Smith Creek and Detention Basin
 - AOC 14a – TM Monitoring Wells
 - AOC 16b – Marine Terminal Loading Area
 - AOC 85 – Marine VRU/TK-4701 and TK4801
 - Tankfields
 - AOC 46 – Slop Gasoline Unloading Area
 - AOC 53 – Second Tankfield
 - AOC 54 – Third Tankfields
 - AOC 6 – HSWA UST
 - AOC 56 – Second Reserve Tankfield
 - AOC 103 – Fire Pits/Fire Training Area
- The identifier for the “Day Tankfield” will be included in this section (AOC 57).
 - AOC 10 and AOC 57 will both be addressed in the Truck Loading Rack Remedial Investigation Workplan (RIW) targeted for submittal in the first half of 2021. This RIW will also include historic spills within the area as well.
 - A detailed update of the status of the Remedial Investigation (RI) of AOC 11a will be included in future quarterly reports, starting with the Second Quarter Progress Report (2021). We are currently in the process of coordinating additional vapor intrusion sampling during the heating season and provided a Scope of Work to the NJDEP and EPA for review on March 5, 2021.

NJDEP Comment 5: RIWs under Revision

- AOC 46 Slop Gasoline Unloading Area (near North Landfarm) (2015 SIR: TW-1 sheen and VOC results) is not listed in any of the tank areas. AOC 46 should be listed.
- Historic spills within the RIW areas should also be listed.

- Include prior SIR review comments in development of future RIWs.
- Include Truck Loading/Day Tank Field RMU area and list AOCs and historic spills within this area.

Earth Systems/Hess Response 5:

- AOC 46 is included in the Tankfields RIW, targeted for submittal in the first half of 2021.
- Historic spills will continue to be addressed in the forthcoming RIW submittals.
- The SIR comments have been addressed and/or utilized in the preparation of all RIW submittals.
- The Truck Loading Rack RIW includes all AOCs and historic spills in the area.

NJDEP Comment 6: Section 2.1 Ground Water Gauging

- Elevation information for the three new gauging locations were included in Table 1a (34d Quarter PR). Supporting survey sheets will need to be part of the 4th Quarter Progress Report with site wide gauging and sampling data.
- The North Ditch and Detention Pond staff gauges may warrant resurvey due to ice damage.
- New surface water gauging locations should be depicted on figures.
- The May monthly gauging event is identified as coincidental with the “annual site-wide gauging event”. Clarify if the May gauging event was in addition to the November gauging and sampling event that includes site-wide sampling.
- A product –like substance was identified at FA-5: Was the product sampled for LNAPL fingerprinting and/ or PFAS-parameters?

Earth Systems/Hess Response 6:

- As our conference call to discuss these comments occurred during the completion of 4th Quarter Progress Report, it was agreed upon by the agencies to include this data with the subsequent reports. Select monitoring wells are gauged on a monthly basis and all Site monitoring wells are gauged during the second and fourth quarters. All survey documentation for surface water gauges will be included in the Second Quarter Progress Report (2021). Surface water gauges are inspected continually and will be resurveyed, if necessary, due to damage from weather.
- Surface water gauges are included on all contour figures included with the quarterly progress reports.
- All Site monitoring wells were gauged in both May 2020 and in November 2020.
- A sufficient amount of the product-like substance from well FA-5 has not been available to collect for fingerprint sampling. As per the laboratory, a liter of material is required to conduct the fingerprint analysis. However, only globules have been present in the monitoring well. The well will continue to be monitored and a sample collected, if possible.

NJDEP Comment 7: Section 2.2 LNAPL IRM

- Limited wells (PL-5) and the interceptor trench were vacuum extracted once during the 2nd Quarter based on the text, and twice in the 3rd Quarter. Socks were replaced at multiple wells at each monthly gauging event and were described as “saturated”. Saturation at each monthly inspection indicates that sock inspection and replacement should be more frequent. Increase the frequency to a minimum of twice a month where socks have been identified as “saturated” at monthly inspections. Increase the frequency as needed so that the sock is not fully “saturated” upon replacement.
- LNAPL at PL-5R is an ongoing concern in proximity to underground pipelines and increasing LNAPL thickness. Reevaluate PL-5R LNAPL IRMs (methods, frequency, etc.) and update the Department on the IRMs.
- Include extraction events in Table 1a Notes and Historic LNAPL table.

Earth Systems/Hess Response 7:

- Gauging events are now being conducted on a biweekly basis for select wells. “Saturation” may have been defined in the field as loaded with silt, debris, etc. and may not have been indicative of saturated with contaminant constituents. More details regarding gauging observations will be included in future quarterly reports, including a more robust definition of “saturation”.
- Current Interim Remedial Measures (IRM) for well PL-5R continue to be addressed, evaluated, and documented in future quarterly reports. If necessary, new IRM protocols will be proposed.
- In addition to summarizing vacuum extraction events in the text of the Quarterly Report, the Historic LNAPL and Monthly Gauging tables have been updated to include the dates of all vacuum extraction events as well.

NJDEP Comment 8: Section 3.1 Low-Flow Sampling Methodology and Section 3.2 Ground Water Sample Collection:

- The Department requests notification of a sampling event to observe field set up and implementation to provide any additional suggestions.

Earth Systems/Hess Response 8: Earth Systems will continue to notify the NJDEP and EPA at least two weeks prior to all sampling events. Pursuant to the NJDEP's comments in the January 12, 2021 meeting, the NJDEP will not be conducting any fieldwork until the end of the pandemic.

NJDEP Comment 9: Areas of Concern and SWMUs (Earth Systems/Hess Response directly follows each comment)

- Identify the timeline to complete North Landfarm tank basin lining. Delay of final closure should lead to implementation of a temporary capping alternative. Provide other tank basin lining plans (and progress). Understanding where this is implemented and when may affect ground water flow interpretations. Also, confirm that tank basin lining will not limit remedial investigation/actions.

- Tankfield lining is currently being addressed as a separate topic. A response to the NJDEP/EPA questions regarding lining of the tankfields was uploaded on February 8, 2021 and a meeting held on February 5, 2021.
- Provide updated ground water sampling plan for the North Landfarm. Comments regarding updating ground water sampling plans for post closure care periods were previously provided with the closure plan reviews. No plans have been submitted to date.
 - As discussed during the January 2021 meeting, revised pre/post closure groundwater sampling plans are being prepared for all landfarms and are targeted for submittal in the first half of 2021.
- Identify the timeline to respond to March 2019 comments on South Landfarm closure plan. Delay of final closure should lead to implementation of a temporary capping alternative.
 - The March 2019 comments pertaining to the South Landfarm will be addressed in the Third Quarter of 2021.
- Provide updated ground water sampling plans for the South Landfarm. Comments regarding updating ground water sampling plans for post closure care periods were previously provided with the closure plan reviews. No plans have been submitted to date.
 - As discussed during the January 2021 meeting, revised pre/post closure groundwater sampling plans are being prepared for all landfarms and are targeted for submittal in the first half of 2021.
- Provide updated ground water sampling plans for the No. 1 Landfarm, and No. 1 Landfarm leachate sampling plan. Comments regarding updating ground water sampling plans for post closure care periods were previously provided with the closure plan reviews. No plans have been submitted to date.
 - As discussed during the January 2021 meeting, revised pre/post closure groundwater sampling plans are being prepared for all landfarms and are targeted for submittal in the first half of 2021.

NJDEP Comment 10: Figures and Tables (Earth Systems/Hess Response directly follows each comment)

- Identify locations of any omitted AOCs based on PAR and/or SIR.
 - No AOCs have been omitted from the AOC figures.
- AOC 13 includes the oily water lagoon, the mini-lagoon, and the backwash lagoon. Figures and labels do not accurately reflect the oily water and mini-lagoon limits, and do not include backwash lagoon boundary. Information from a schematic drawing is still shown for oily water lagoon, API Separator piping to former treatment plant and former treatment plant.
 - The boundaries of AOC 13 have been reviewed in conjunction with available schematics and aerial photographs and the depiction of AOC 13 features has been revised.

- The AOC 78 location is not consistent with aerial photos as previously commented on.
 - Historic information regarding the location of AOC 78 will be reviewed in conjunction with aerial photographs and the AOC figure revised if appropriate.
- Historic spill locations should be included on the AOC/RMU figures and incorporated into future RIWs.
 - Historic spills will be included on the AOC map included with all future quarterly reports. Historic spills will continue to be addressed in the appropriate RIWs that are targeted for submittal in the first half of 2021.
- Figures do not include underground petroleum pipelines, the urban sewer, stormwater collection system, or the discharge lines from original oil water lagoon and former AWWTP. Figures should include all piping at the site as they can be preferential pathways.
 - Quarterly report figures have been updated to include the piping specified above.
- The detention basin was not gauged during each monthly gauging event or during the May annual gauging event. When gauged, the surface water elevation data is not applied to the entire limits of the surface water body to evaluate GW-SW interaction with surrounding ground water elevation data. It appears to continue to be used as a ground water elevation.
 - The detention basin is gauged on a monthly basis. The Second Quarter Progress Report (2021), as well as the upcoming Conceptual Site Model (CSM) Report, will explain how the elevation of the detention basin is used to evaluate surface to groundwater interaction.
- Detention basin surface water limits need to be represented on the ground water contour figures.
 - Detention basin surface water limits have historically been represented, and will continue to be represented, on the groundwater contour figures.
- Clarify if column “DTB from TOC” is based on well construction record or field gauging. Both columns were requested in comments on the WCST (one reflecting well construction record TD from TOC, one reflecting field gauging TD from TOC). The Department acknowledges the receipt of the WCST comments after submission of the 2nd and 3rd quarterly reports.
- TR-4R and TR-4D labeling: TR-4R is the shallow well, TR-4D is the deeper well. Labeling is reversed.
- TOC elevations for SC-wells are incorrect on this table. See WCST for correct TOCs.
 - The following response is for the above three (3) comments. A revised Well Manual and a Response to Comment (RTC) regarding comments for the initial well manual were uploaded to the portal on January 7, 2021. All Site monitoring well information/comments were addressed in the RTC and revised Well Manual.

- Surface water gauging was not included in each gauging event 2nd Quarter, all events 3rd Quarter; 3rd Quarter included gauging at new Smith Creek staff gauges. Smith Creek staff gauge locations should be depicted on a figure.
 - Surface water levels for the detention basin are always recorded during gauging events and included on Site contour maps. Surface water levels for Smith Creek will also be recorded on a monthly basis and included on Site contour maps.
- Check PL-7 based on “dry” description and DTB from TOC 5.01’ TOC. Well should be screened 5-20’ TOC.
 - A revised Well Manual and a Response to Comment (RTC) regarding comments for the initial well manual were uploaded to the portal on January 7, 2021. All Site monitoring well information/comments were addressed in the RTC and revised Well Manual.
- Include BGS or TOC reference point for column labeled “DTB original” and confirm based on well construction record.
 - A revised Well Manual and a Response to Comment (RTC) regarding comments for the initial well manual were uploaded to the portal on January 7, 2021. All Site monitoring well information/comments were addressed in the RTC and revised Well Manual.
- Clarify if column “DTB from TOC” is based on well construction record or field gauging. Both columns were requested in comments on the WCST (one reflecting well construction record TD from TOC, one reflecting field gauging TD from TOC).
 - A revised Well Manual and a Response to Comment (RTC) regarding comments for the initial well manual were uploaded to the portal on January 7, 2021. All Site monitoring well information/comments were addressed in the RTC and revised Well Manual.
- AD-9DD depth TOC indicates loss of screen interval.
 - A revised Well Manual and a Response to Comment (RTC) regarding comments for the initial well manual were uploaded to the portal on January 7, 2021. All Site monitoring well information/comments were addressed in the RTC and revised Well Manual.
- Check PL-7 based on “dry” description and DTB from TOC 5.01’ TOC. Well should be screened 5-20’ TOC
 - A revised Well Manual and a Response to Comment (RTC) regarding comments for the initial well manual were uploaded to the portal on January 7, 2021. All Site monitoring well information/comments were addressed in the RTC and revised Well Manual.
- Any well in this table is assumed to have a sock deployed or is vacuum extracted. Please clarify this information.

- Earth Systems assumes that the “table” referenced in the above comment is the Monthly Gauging Table. The IRMs utilized for each well will be clarified in the Monthly Gauging Table in all future quarterly reports.
- Add FA-5 and interceptor trench/sumps to the table.
 - Monitoring well FA-5 and the interceptor trench/sumps were included on the monthly gauging table included with the 2020 Second and Third Quarterly Reports and will continue to be included in the gauging table of future quarterly reports.
- Include “globules” as a description along with “sheen” or measured LNAPL thickness.
 - The term “globules” will also be used, if appropriate, in the Monthly Gauging Table.
- Include IRM action in table, e.g., saturated sock/replaced, vacuum extracted.
 - A column for IRM actions has been added to the Monthly Gauging Table.

Should you have any questions or require additional clarification or information, please contact me at 732-739-6444 or via e-mail at ablake@earthsys.net. If you have any questions relating to the project and schedule moving forward, you can also contact Mr. John Schenkewitz of Hess Corporation at 609-406-3969.

Sincerely,



Amy Blake
Sr. Project Manager

- c. Ms. Julia Galayda, NJDEP Case Manager (via email/Sharefile)
Mr. John Schenkewitz – Hess Corporation (via e-mail)
Mr. Rick Ofsanko – Earth Systems (via e-mail)
Mr. John Virgie – Earth Systems (via e-mail)

Appendix C

NJDEP Dataminer Inspection Summary

**Inspection Summary Report for HESS PORT READING REFINERY - Activity Number
SCI 210001**

Oct 06, 2021 05:06

NOTE: The information contained in this report will be limited to the date each program began using the Department's integrated database, NJEMS. The programs began using the system for this information as follows: Air - 10/1998; Hazardous Waste - 1/2000; Water - 7/2000; TCPA - 12/2001; Land Use 12/2001; DPCC - 1/2002; Solid Waste - 1/2002; Right To Know - 3/2002 and Pesticides - 4/2002; Site Remediation - 3/2003 and Radiation (limited information) - 7/2006. For complete information prior to these dates, please submit an official OPRA request form to the Department. If printing this report, select landscape orientation.

Disclaimer: Only final inspection reports are listed in this report. Inspections for which a report has not been finalized by the Department will not appear in this report. Also, inspections which yield violations but where the inspected entity has not yet been notified of the violation are not listed in this report. For inspections indicating Out of Compliance, this means that violations were observed during the inspection, based on facts and information known to the Department at the time of the inspection. Errors or omissions in the factual basis for any violation may result in a future change in classification as a violation when such information becomes known.

Activity Number:	SCI 210001	Inspection Type:	(HW) Operation and Maintenance (O&M) Inspection	Program Interest ID:	NJD045445483
Inspection Start Date:	4/13/21	End Date:	4/13/21	Lead Investigator:	King, Paul
Program Interest Name:	HESS PORT READING REFINERY				
Address:	750 CLIFF RD	Port Reading	NJ	07064	County: Middlesex - Woodbridge Twp
Block(s) and Lot(s):	Block 756.B Lot 2, Block 760.01 Lot 3, Block 760.02 Lot 1, Block 756 Lot 3, Block 756.B Lot 3, Block 756.02 Lot 1, Block 756.B Lot 7, Block 760 Lot 6, Block 760.02 Lot 2, Block 756.B Lot 4.A, Block 760.B Lot 2, Block 760 Lot 1.D, Block 760.A Lot				

3, Block 760.B Lot 1, Block 756.01 Lot 2, Block 756.01 Lot 3, Block 756.B Lot 4.B, Block 1095.01 Lot 6, Block 760 Lot 1.B, Block 760.B Lot 3, Block blue Lot blue, Block 756.B Lot 1, Block 757 Lot 1. . .

Comments:

See Attached Narrative

Subject Item: HOAM 0 - Operation and Maintenance (O&M) Checklist

Requirement Description	Compliance Status	Compliance Comments	Grace Days	Non Minor Reason	Requirement Source
		Hess Port Reading Refinery (Hess) shut down and site was sold to Buckeye Port Reading Terminal LLC (Buckeye) in December 2013. Buckeye operates a bulk storage and distribution terminal for petroleum products at the site. Hess dismantled and removed all refinery-related equipment/ components from the site. Hess agreed to retain responsibility for the cleanup of contamination at the site from its past operations (remedial action activities			

*O & M CHECKLIST	Heading	<p>associated with Solid Waste Management Units (SWMUs), Areas of Concern (AOCs), Historic Spills (HSs) and Remediation Management Units (RMUs) identified at the site) and the closure/post-closure of three land treatment SWMUs it previously operated at the site, No. 1 Landfarm (No. 1 LF), North Landfarm (NLF), and South Landfarm (SLF). The landfarm closures and cleanup activities are being directed under a HSWA permit (Andy Park, USEPA Case Manager) and NJDEP Site Remediation Program (SRP) oversight (Phil Cole, Case Manager). This O&M audit covers only the No. 1 LF and is covered by a NJPDES/RCRA-Industrial Waste Management Facility (IWMF) Operating Permit (No. NJ0028878,</p>			Rules
------------------	---------	--	--	--	-------

		effective 5/1/88, modified 3/21/90 & 4/26/93). There is a long, complex history of activity/communication concerning these units and it is likely that the NLF and SLF have not been included in the O&M audits since permits were never issued for these units and they have remained in RCRA-Interim Status since receiving in 1980. The NLF operated from 1975 to 1985 and the SLF operated from 1975 to 1984. Additional information on these landfarms is provided in the Word doc associated with this O&M audit.			
*PART A: PRE-INSPECTION EVALUATION	Heading				Rules
*1 - FACILITY STATUS	Heading				Rules
Current RCRA-regulated land disposal units:.	Data Collection				Rules
Unit Name.	Data Collection	No. 1 Landfarm (No. 1 LF)			Rules
# Wells.	Data Collection	6 wells (BG-2, BG-3, L1-1, L1-2, L1-3, L1-4)			Rules
LD Type.	Data Collection	Land Treatment Unit			Rules

Closure Status.	Data Collection	<p>The No. 1 LF is not in operation and closure is pending. A RAW was submitted to the USEPA and NJDEP in September 2016 and comments were received from the USEPA and NJDEP on July 9, 2018. A 100% Soil Remedial Action Design for the No. 1 Landfarm engineering control was submitted on May 24, 2019. Comments regarding the 100% engineering control design submittal were received from the NJDEP on October 7, 2019. The comments were addressed by Hess/Earth Systems on November 1, 2019, and the NJDEP subsequently approved the response. The NJDEP and USEPA issued an approval letter of the 100% engineering control design on April 28, 2020</p>			Rules
Indicate unit status and identify enforcement actions issued to facility:.	Data Collection	See below			Rules

Detection Monitoring.	Yes	Routine monitoring (groundwater, soil, leachate) will continue at the No. 1 Landfarm, pending approval and execution of closure.			Rules
Assessment Monitoring.	No				Rules
Corrective Action.	No				Rules
Compliance Monitoring.	No				Rules
3008(a) complaint/order.	No				Rules
3013 complaint/order.	No				Rules
3008(h)complaint/order.	No				Rules
7003 complaint/order.	No				Rules
Referral for litigation.	No				Rules
Indicate type and date of the most recent inspections conducted at facility:.	Data Collection	See below			Rules
Operation & Maintenance.	Data Collection	10/24/19 & 10/26/19			Rules
Comprehensive Monitoring Eval.	Data Collection				Rules
Compliance Eval. Inspection.	Data Collection				Rules
Other.	Not Applicable				Rules
List deficiencies that were noted during last CME/O&M inspection of facility:.	Not Applicable				Rules
*2 - SAMPLING AND ANALYSIS PLAN:	Heading				Rules

When did current plan go into effect?.	Data Collection	Quality Assurance Project Plan (QAPP) prepared by Earth Systems and last updated September 2017 (used in conjunction with NJDEP's Field Sampling Procedures Manual and in place of the previously provided 8/23/91 Sampling & Analysis Plan)			Rules
Describe well sampling procedure. List provisions for measuring static water elevations prior to sampling; use of dedicated/non-dedicated sampling equipment; evacuation procedures; inventory of sampling devices; collection and containerization of samples; preservation methods; sample transferring procedures; chain-of-custody program; provisions for collecting field and trip blanks; operating, calibration, and maintenance procedures/schedule, etc.	Data Collection	Static water levels measured using required procedures and equipment; sampling equipment dedicated or deconned between wells; sample collection and containerization performed as per facility's QAPP, samples preserved as required; chain-of-custody documentation as required; and trip/field blanks used as required.			Rules
*3 - WELL CONSTRUCTION PARAMETERS:	Heading				Rules
Well No.	Data Collection	Well #s identified below at each parameter.			Rules

U/D-Grad.	Data Collection	BG-2 - upgradient BG-3 - downgradient L1-1 - upgradient L1-2 - downgradient L1-3 - downgradient L1-4 - downgradient			Rules
Total Depth.	Data Collection	BG-2 - 9.20 ft BG-3 - 10.70 ft L1-1 - 13.50 ft L1-2 - 14.39 ft L1-3 - 11.00 ft L1-4 - 11.25 ft			Rules
Casing Material.	Data Collection	PVC			Rules
Casing Diameter.	Data Collection	4" diameter			Rules
Screen Depths.	Data Collection	BG-2 - 4.20 ft BG-3 - 5.00 ft L1-1 - 3.00 ft L1-2 - 7.00 ft L1-3 - 5.00 ft L1-4 - 4.00 ft			Rules
*PART B: FIELD AUDIT CHECKLIST	Heading				Rules
*I- REVIEW OF OPERATING RECORD OF FACILITY	Heading				Rules
*DOES OPERATING RECORD INCLUDE:	Heading				Rules
Annual reports of GW monitoring results?.	Yes	The facility submits semi- annual reports and quarterly progress reports.			Rules
Inventory of all sampling devices and purging equipment?.	Yes	Some supplied through rental company (Pine Environmental Services Inc)			Rules
Operating, calibration and maintenance procedures?.	Yes	SOPs maintained as per NJDEP Lab Certification Program for use and management of testing equipment.			Rules

Operating, calibration and maintenance procedures?.	Yes				Rules
Criteria used to replace/repair sampling equipment or wells?.	Yes	Routine monitoring well inspections conducted.			Rules
Schedule for performing O&M activities?.	Yes				Rules
Records for GW monitoring providing a) date, time of sampling; b) individuals who performed sampling; c) date(s) analyses were performed; d) analytical techniques or methods used; e) results of analysis?.	Yes				Rules
Determination of GW flow rate and direction(s) in uppermost aquifer on annual basis?.	Yes	Site GW flow is determined on a monthly basis using a portion of the wells at the site and annually at all wells, including those at the No. 1 LF.			Rules
Is a copy of the Sampling and Analysis Plan on-site?.	Yes				Rules
Have there been changes to components of the GW monitoring system (new wells, abandoned wells, repairs, replacement of parts)?.	No				Rules
Are there other activities on site that may affect well system?.	No				Rules
Is there a program established to periodically re-survey well head elevations?.	Yes				Rules
*II- VISUAL INSPECTION OF EACH WELL FOR EVIDENCE OF DAMAGE	Data Collection				Rules
*EXAMINE WELLS TO DETERMINE FOLLOWING:	Heading				Rules
Are wells clearly marked and identified?.	Yes				Rules
Is there evidence of casing degradation (collision damage, excessive corrosion, cracking, subsidence, frost heaving)?.	No				Rules
Is there evidence of apron degradation (missing, cracking, subsidence, frost heaving, etc)?.	No				Rules
Signs of problems with cap (missing, excessive corrosion, cracking)?.	No				Rules
Did location of wells correspond to facility schematic?.	Yes				Rules
Signs of problems with locks (missing, excessive corrosion)? .	No				Rules

Does the well have a surveyed casing elevation mark?.	Yes				Rules
Is there standing or ponded water between inner and outer casings?.	No	None noted			Rules
Are boreholes vertically true?.	Yes	Well casings appeared visually to be generally vertical.			Rules
Other:.	Not Applicable				Rules
*III- OBSERVED FIELD SAMPLING PROCEDURES	Data Collection				Rules
*1 - PARTICIPANTS:	Heading	NJDEP: Paul King, Environmental Specialist 3, 609-439-9728 Sam Getty, Environmental Engineer 2 SAMPLING CONTRACTOR - EARTH SYSTEMS INC: Amy Blake, LSRP, Sr. Project Manager - Earth Systems, Inc Ryan Carr, Environmental Specialist (Sampler) - Earth Systems, Inc Kyle Young, Environmental Specialist (Sampler) - Earth Systems, Inc HESS: John Schenkewitz, Manager - Remediation, 609-406-3969, C 732-614-0726			Rules
NAME.	Data Collection	See Above			Rules

TITLE.	Data Collection	See Above			Rules
AFFILIATION.	Data Collection	See Above			Rules
TEL. NO.	Data Collection	See Above			Rules
Name/address of environmental firm doing sampling: .	In Compliance	Earth Systems, Inc 1625 Highway 71 Belmar, NJ 07719 732-739-6444			Rules
*2 - WEATHER CONDITIONS:	Heading	Sunny, 65-75 degrees F,			Rules
*3 - FIELD EQUIPMENT	Heading				Rules
*3A. STATIC WATER LEVEL	Heading	Purging of monitoring wells conducted via low- flow purging and sampling methodology using a water quality meter with flow cell and sensors to monitor for the stabilization of indicator parameters prior to collection of samples. Purge rates are monitored and adjusted to stabilize drawdown.			Rules
Water level indicator.	Yes				Rules
Steel tape.	Yes				Rules
Scale (ft):.	Data Collection	0.01			Rules
Electronic Interface Probe (DNAPL, LNAPL).	Yes				Rules
Other:.	Not Applicable				Rules
Manufacturer: .	Data Collection	Solinst Interface Meter			Rules
Model No.	Data Collection	Model 101			Rules

Notes:.	Heading				Rules
*3B. EVACUATION	Heading	Purging of monitoring wells conducted via low-flow purging and sampling methodology using a water quality meter with flow cell and sensors to monitor for the stabilization of indicator parameters prior to collection of samples. Purge rates are monitored and adjusted to stabilize drawdown.			Rules
Bailer.	No				Rules
Pump.	Yes				Rules
Other:.	Yes	Water quality meter with flow cell			Rules
Pump type (submersible, bladder, gas displacement, etc.):.	Data Collection	Submersible			Rules
Manufacturer:.	Data Collection	Pump: Proactive Water Quality Meter: Horiba			Rules
Model No:.	Data Collection	Water Quality Meter: U-52			Rules
Pump flow rate (g.p.m.):.	Data Collection	Variable			Rules
How was flow rate determined?.	Data Collection	Measured into graduated cylinder and timed.			Rules
Power source (gas, electric/compressor, battery):.	Data Collection	Battery			Rules
Hose construction (PVC, Tygon, polyethylene, etc.):.	Data Collection	Teflon-lined tubing			Rules

Dedicated?.	Data Collection	Water quality meter and pump cleaned between wells using Alconox and deionized water rinse. Hose thrown away.			Rules
Describe handling/disposal of purged water:.	Data Collection	Purged water drummed and brought to their on-site waste water treatment plant.			Rules
*3C. SAMPLE COLLECTION	Heading	Groundwater samples collected via low-flow sampling methodology using a water quality meter with flow cell and sensors to monitor for the stabilization of indicator parameters prior to collection of samples.			Rules
Bailer.	No				Rules
Pump.	Yes	Submersible (same as used for evacuation)			Rules
Other.	Yes	Water quality meter with flow cell (same as used for evacuation)			Rules
Bailer construction (Teflon, PVC, etc.):.	Not Applicable				Rules
Bailer size:.	Not Applicable				Rules
Dedicated?.	Not Applicable				Rules
Does bailer have check valves/bottom emptying devices (Y/N)?.	Not Applicable				Rules
What type of lines were used with bailers:.	Not Applicable				Rules

Stainless steel Teflon-coated cord Cotton rope PVC cord Nylon cord Other:.	Not Applicable				Rules
*3D. AIR MONITORING	Heading	O2 monitor worn on hardhat during sampling			Rules
HNU.	No				Rules
OVA.	No				Rules
Other.	Data Collection	MiniRAE 2000			Rules
Manufacturer:.	Data Collection	RAE Systems			Rules
Model No.	Data Collection	MiniRAE 2000			Rules
Notes:.	Heading				Rules
*3E. ANALYTICAL INSTRUMENTATION USED IN FIELD	Data Collection	The water quality meter with flow cell (Horiba Model No. U-52) allows for continuous measurements of indicator parameters. The unit was calibrated by Pine Environmental (equipment owner) for all parameters on 4/12/21 and done by sampling crew prior to sampling each day for pH, conductivity, turbidity and DO.			Rules
pH Meter.	Data Collection	See Above			Rules
MANUFACTURER/MODEL NO.	Data Collection	See Above			Rules
CALIBRATION DATE.	Data Collection	See Above			Rules
Thermometer.	Data Collection	See Above			Rules
MANUFACTURER/MODEL NO.	Data Collection	See Above			Rules
CALIBRATION DATE.	Data Collection	See Above			Rules

Specific Conductance.	Data Collection	See Above			Rules
MANUFACTURER/MODEL NO.	Data Collection	See Above			Rules
CALIBRATION DATE.	Data Collection	See Above			Rules
Other:.	Data Collection	Dissolved oxygen, redox potential, turbidity			Rules
MANUFACTURER/MODEL NO.	Data Collection	See Above			Rules
CALIBRATION DATE.	Data Collection	See Above			Rules
Notes:.	Heading				Rules
*4 - SAMPLING EVALUATION	Heading				Rules
*4A - SAFETY CONSIDERATIONS	Heading				Rules
Were adequate safety gear and precautions used by the sampling crew? .	Yes				Rules
Did the sampling team take atmospheric readings in the wellhead before sampling?.	Yes				Rules
Did the sampling team take any periodic surveys of the atmosphere?.	Yes	Continuous read Oxygen meters attached to hard hats worn by samplers.			Rules
*4B - ESTABLISHING CLEAN ZONE AND DECONTAMINATION	Heading	Deemed unnecessary as wells not heavily contaminated thus no contaminated area.			Rules
Did sampling team provide a decon zone designating a clean and contaminated area? .	Not Applicable				Rules
Was plastic sheeting used to cover the ground?.	Yes				Rules
Prior to use, are all bailers, sampling bottles, etc. kept clean, i.e. not placed in direct contact with ground?.	Yes				Rules

Did crew thoroughly clean sampling devices between samples?.	Yes	Water quality meter and pump cleaned using Alconox and deionized water rinse between samples, but new tubing used at each well.			Rules
*4C - WELL-PURGING PROCEDURES	Heading				Rules
Did sampling crew measure static water levels and well depths before purging?.	Yes	Static water levels measured every 5 mins during monitoring of indicator parameters. Well depths measured after sampling so as not to disturb bottom of well before sampling, though well depths of all monitoring wells at the site measured yearly.			Rules
Is the well head elevation reference point clearly marked?.	Yes				Rules
Did sampling crew record depth to +/- 0.01 ft?.	Yes				Rules
Did sampling crew take air sample in well head for organic vapors before evacuation?.	Yes				Rules
Did sampling crew lower interface probe to detect immiscible layers? Were immiscible samples collected?.	Yes	No immiscible layers			Rules
Did crew evacuate low yielding wells to dryness before sampling?.	Not Applicable				Rules

Did crew evacuate high yielding wells for three casing volumes?.	Not Applicable	Low flow purging and sampling conducted at wells (continuous indicator parameter monitoring indicates when water in well is representative of in-situ groundwater quality).			Rules
Was gasoline transported in same vehicle as sample bottles, field and trip blanks, etc?.	No				Rules
Was gasoline pump/generator/compressor set down-wind of sampling well site?.	Not Applicable	All equipment is run on battery power.			Rules
Were dedicated hoses used for pumping each well?.	Yes				Rules
Describe decontamination method used to clean pump between wells:.	In Compliance	Water quality meter and pump cleaned between wells using Alconox/water mixture and deionized water rinse.			Rules
*4D - SAMPLE COLLECTION AND ANALYSIS	Heading				Rules
Did the sampling crew sample background wells before sampling downgradient wells?.	Not Applicable	Deemed unnecessary by the facility based on past sampling data since the wells are not heavily contaminated.			Rules
What order were samples collected, e.g., volatiles, semi-volatiles, Total Dissolved Solids, etc? .	Data Collection	Volatiles, semi-volatiles, total metals, general chemistry compounds			Rules
What parameters were determined in the field?.	Data Collection				Rules
Temperatures.	Yes				Rules

pH.	Yes				Rules
Specific conductivity.	Yes				Rules
Redox potential.	Yes				Rules
Chlorine.	No				Rules
Dissolved oxygen.	Yes				Rules
Turbidity.	Yes				Rules
Other.	Not Applicable				Rules
Did the sampling crew measure static water level immediately before sampling (low-yielding well) to determine if well had sufficiently recovered?.	Yes				Rules
If crew used bailers, did they transfer bailer contents directly to sample container?.	Not Applicable				Rules
If crew used bailers, was the bailer lowered gently into the water column to minimize possible volatilization of organics?.	Not Applicable				Rules
Did sampling crew use fluorocarbon resin or polyethylene containers with polypropylene caps for samples requiring metals analysis?.	Yes				Rules
Did sampling crew use glass bottles with fluorocarbon resin-lined caps for samples requiring metals?.	Yes				Rules
If samples are for inorganic analysis, does the cleaning procedure include the following sequential steps?..	Not Applicable	New bottles for all samples			Rules
Dilute acid rinse (HNO3 or HCl)?.	Not Applicable				Rules
Distilled/deionized water rinse?.	Not Applicable				Rules
If samples are collected for organic analyses, did cleaning procedures include?.	Not Applicable				Rules
Non-phosphate detergent wash?.	Not Applicable				Rules
Tap water rinse?.	Not Applicable				Rules
Distilled/deionized water rinse?.	Not Applicable				Rules
Acetone rinse?.	Not Applicable				Rules
Pesticide-grade hexane rinse?.	Not Applicable				Rules

If dedicated sampling equipment is not used, is equipment disassembled and thoroughly cleaned prior to sampling.	Yes	Water quality meter and pump cleaned between wells using Alconox/water mixture and deionized water rinse.			Rules
Were disposable gloves changed prior to next sampling?.	Yes				Rules
*4E - FIELD QA/QC	Heading				Rules
Were the following performed at least once during each day of sampling?.	Yes				Rules
1. Field Blanks?.	Yes				Rules
2. Trip Blanks.	Yes				Rules
After each sampling, are all samples labeled?.	Yes				Rules
Information given on labels:.	Data Collection	Sample ID#, date/ time of sample, client/project name, preservative used, person collecting sample.			Rules
Give specifications of containers used:.	Data Collection	A total of 10 bottles supplied by the lab were used for sample collection at each well. Volatiles - 3 x 40ml glass vials Semi-Volatiles - 2 x 1L amber glass Total Metals - 500ml plastic Mercury - 250ml plastic Ammonia - 60ml glass Cyanide - 60ml glass Phenols - 500ml glass			Rules
Were samples preserved?.	Yes				Rules

Describe preservatives used (e.g. HCl drops):.	Data Collection	Volatiles - HCl Total Metals - HNO3 Mercury - HNO3 Ammonia - H2SO4 Cyanide - NaOH/ascorbic acid Phenols - H2SO4			Rules
Was pH of preserved samples verified in the field using pH paper?.	Not Applicable	Water quality meter monitors for pH as indicator parameter every 5 minutes during well stabilization and pH is also verified by laboratory.			Rules
Were samples immediately placed in an ice cooler (temp. 4oC)?.	Yes				Rules
Was a field log book/field data sheets used to record information about each sample collection? .	Yes				Rules
Were Chain of Custody forms used?.	Yes				Rules
Was each Chain of Custody form filled out completely after each sampling? .	Yes				Rules
If not, when were they filled out? .	Not Applicable				Rules
List the information requested on the facility's chain-of-custody form: .	Data Collection	Facility/client names/addresses, Project info #, sample/well ID#, date, time, sampler's names/ initials, sample type, number of preserved bottles, analysis requested			Rules
Name, address and certification number of analytical Laboratory used:.	Data Collection	SGS Accutest Laboratories Inc 2235 Rt 130 Dayton, NJ 08810 Lab certification #: 12129			Rules

Identify deficiencies in the way owner/operator's sampling crew departed from written Sampling and Analysis Plan..	Not Applicable				Rules
INDICATE WHAT PARAMETERS WERE SAMPLED FOR.	Data Collection				Rules
WELL/SAMPLE NO.	In Compliance	All 6 wells (BG-2, BG-3, L1-1, L1-2, L1-3, L1-4) sampled for the parameters indicated below.			Rules
VOLATILE ORGANICS.	Yes				Rules
SEMI-ORGANIC VOLATILES.	Yes				Rules
PESTICIDES/HERBICIDES.	No				Rules
PCBs.	No				Rules
TOTAL METALS.	Yes				Rules
DISSOLVED METALS.	Yes				Rules
INDICATORS.	Yes				Rules
RADIOLOGICAL.	No				Rules
OTHER:.	Data Collection	Ammonia, Cyanide, Phenols			Rules
SAMPLING EVALUATION SHEET (repeat for each well).	Data Collection				Rules
Well No.	Data Collection	Well #s identified below for each item.			Rules
Depth of well (ft).	Data Collection	BG-2 - 9.00 ft BG-3 - 12.00 ft L1-1 - 14.25 ft L1-2 - 15.50 ft L1-3 - 11.40 ft L1-4 - 11.00 ft			Rules
Length of Column (ft).	Data Collection				Rules
Well diameter (in).	Data Collection	All wells 4" diameter.			Rules
Calculated well volume.	Data Collection				Rules

Purging device.	Data Collection	Calculated based on the well casing volume of 0.653 gals per foot of depth in a 4'' diameter well.			Rules
pH.	Data Collection	BG-2 - 5.85 BG-3 - 6.53 L1-1 - 4.72 L1-2 - 6.77 L1-3 - 7.08 L1-4 - 7.08			Rules
Temp.	Data Collection	BG-2 - 14.18 BG-3 - 10.83 L1-1 - 14.20 L1-2 - 10.30 L1-3 - 11.01 L1-4 - 11.32 All measurements in degrees Celsius			Rules
Conductance.	Data Collection	BG-2 - 0.141 BG-3 - 0.184 L1-1 - 2.17 L1-2 - 0.585 L1-3 - 0.164 L1-4 - 0.208 All measurements in micro-siemens per centimeter (μ s/cm)			Rules
Odor/Appearance.	Data Collection	All wells were clear			Rules
Sample time.	Data Collection	BG-2 - 1255 hrs on 4/13/21 BG-3 - 1020 hrs on 4/13/21 L1-1 - 1440 hrs on 4/13/21 L1-2 - 1035 hrs on 4/13/21 L1-3 - 1345 hrs on 4/13/21 L1-4 - 1155 hrs on 4/13/21			Rules